

**This Page Is Inserted by IFW Operations
and is not a part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

THIS PAGE BLANK (USPTO)

STIC-Biotech/ChemLib

29030

From: Holleran, Anne
Sent: Thursday, November 09, 2000 1:54 PM
To: STIC-Biotech/ChemLib
Subject: sequence search for 09/266,543

Please search the following sequences for 09/266,543:

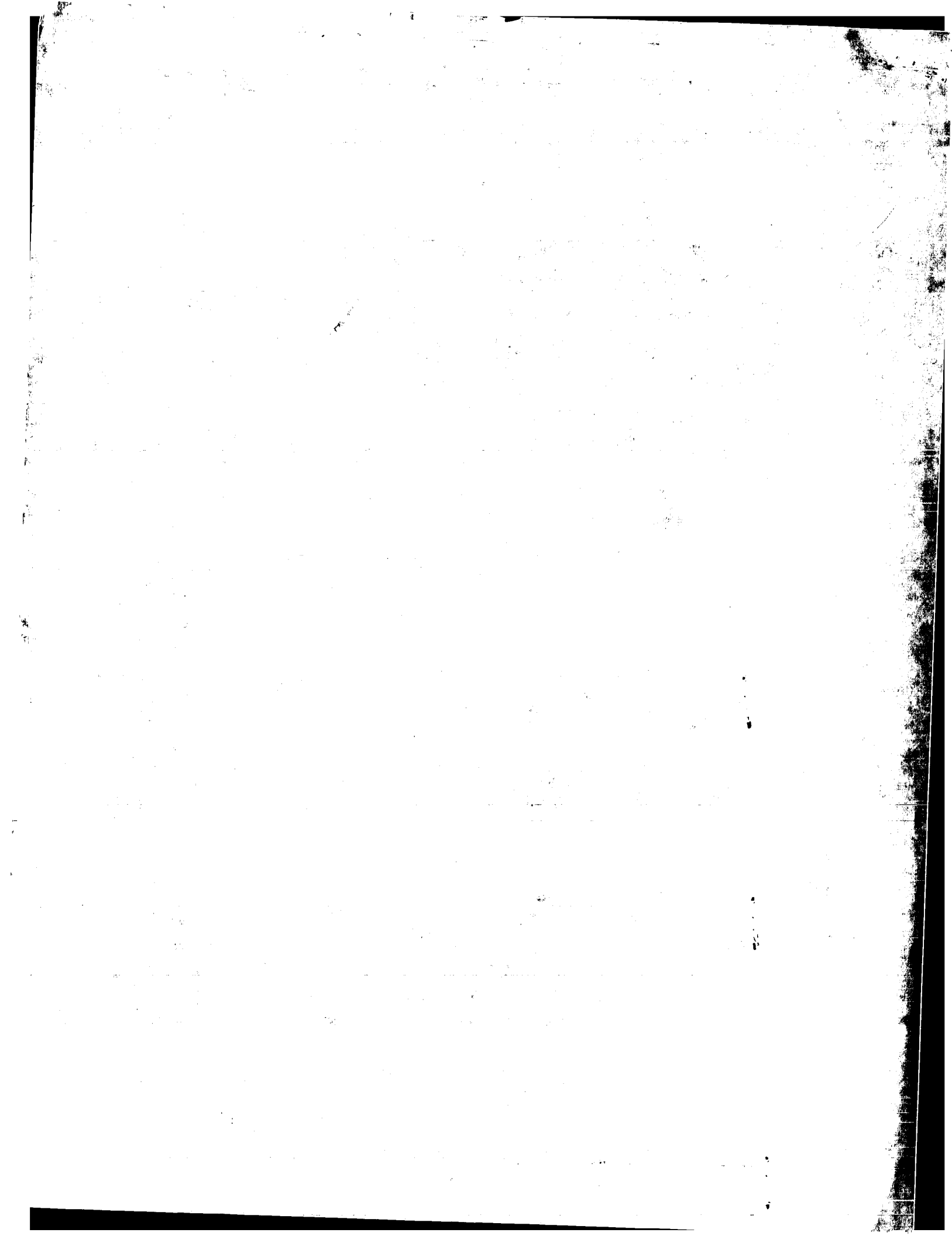
1. commercial and interference search of SEQ ID NO: 1 (aa)
2. commercial and interference search of SEQ ID NO: 2 (aa)
3. commercial and interference search of SEQ ID NO: 3 (aa)
4. commercial and interference search of SEQ ID NO: 4 (aa)
5. commercial and interference search of SEQ ID NO: 5 (aa)
6. commercial and interference search of SEQ ID NO: 6 (aa)
7. commercial and interference search of SEQ ID NO: 7 (aa)
8. commercial and interference search of SEQ ID NO: 8 (aa)
9. commercial and interference search of SEQ ID NO: 9 (aa)

Thanks

Anne Holleran
AU:1642
Tel: 308-8892
Room: 8E03

Thanks

Anne Holleran
AU:1642
Tel: 308-8892
Room: 8E03



CC residue sequence Pro-Asp-Gly-Arg which constitutes residues 36-39 of
 CC basic FGF. It is also antagonistic to acidic FGF. The antagonist
 CC modulates growth of epithelial (and related) cells and can be used
 CC diagnostically or therapeutically, eg to treat proliferative
 CC diseases of eyes and kidneys, some types of tumours and adrenal
 CC vascularisation. It is able to bind with heparin or with the FGF
 CC receptor.
 CC See also P71542, P71557, P71558 and P71561.
 CC
 XX
 SQ Sequence 45 AA;

Query Match 100.0%; Score 239; DB 8; Length 45;
 Best Local Similarity 100.0%; Pred. No. 4.2e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 1 YCKNGGFLLRHPDGRVDGVRKSDPHIKLQLAERGVSITKV 45
 1 ycknggfllrhpdgvrvgvrekspdhiklqlqaergvvsitkv 45

RESULT 2
 R43278 R43278 standard; peptide; 45 AA.
 XX
 AC R43278;
 XX
 DT 05-MAY-1994 (first entry)
 XX
 DE FGF antagonist bFGF(24-68)-NH2.
 XX
 KW Bovine; basic fibroblast growth factor; antagonist; mitogen;
 XX melanoma; glomerulonephritis; retinopathy.
 XX
 OS Synthetic.
 XX
 FH Key Location/Qualifiers
 FT Modified-site 45
 FT /note="amitated"

XX US5252718-A.
 XX 12-OCT-1993.
 XX
 PF 22-APR-1986; 86US-0854843.
 XX
 PR 22-APR-1986; 86US-0854843.
 XX 14-NOV-1988; 88US-0270225.
 PR 27-APR-1992; 92US-0873773.
 XX
 PA (SALK) SALK INST BIOLOGICAL STUDIES.
 XX
 PI Baird JA, Ling NC;
 XX
 DR WPI; 1993-336156/42.
 XX
 PT New fibroblast growth factor peptide(s) - are FGF antagonists
 PT used to inhibit cell growth in culture or in disease e.g.
 PT retinopathy, glomerulonephritis, melanoma etc.
 XX
 PS Example 1; Column 10; 12pp; English.
 XX
 CC The peptide bFGF(24-68)-NH2 (100mcg/ml) reduces the amount of
 CC radioactive bFGF bound to the BHK cells by 54% and shows strong
 CC affinity to bind heparin.
 CC
 XX Sequence 45 AA;

Query Match 100.0%; Score 239; DB 14; Length 45;
 Best Local Similarity 100.0%; Pred. No. 4.2e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY * 1 YCKNGGFLLRHPDGRVDGVRKSDPHIKLQLAERGVSITKV 45
 Db 1 ycknggfllrhpdgvrvgvrekspdhiklqlqaergvvsitkv 45

RESULT 3
 ID P81933 standard; protein; 86 AA.
 XX
 AC P81933;
 XX
 DT 26-OCT-1990 (first entry)
 XX
 DE Human basic fibroblast growth factor muten C86 from phage M13-PC86.
 XX
 DE Human basic fibroblast growth factor; human bFGF muten C86;
 XX growth promoting activity; growth stimulating activity; phage M13-PC86;
 XX capillary endothelial cells; angiogenic activity.
 XX
 OS Synthetic.

XX Key Location/Qualifiers
 FH Misc-difference 87..87
 FT /label-mutation Lys. to stopcodon
 FT /note="creates Afl II recognition site"
 XX
 XX EP281822-A.
 XX
 PD 14-SEP-1988.
 XX
 PF 20-FEB-1988; 88EP-0102491.
 XX
 PR 24-FEB-1987; 87JP-0042218.
 XX
 PA (TAKE) TAKEDA CHEMICAL IND KK.
 XX
 PI Senoo M, Krokawa T, Igarashi K, Sasada R;
 XX WPI; 1988-258580/37.
 DR N-PDSB; N81990.
 XX
 PT Muten of basic fibroblast growth factor -
 PT having fibroblast growth promoting activity, growth stimulating
 PT activity of capillary endothelial cells and angiogenic activity.
 XX
 PS Disclosure; 1pp; English.

XX Using plasmid pPB796, E.coli MM294 was transformed, whereby the
 CC strain E.coli MM294/pPB796 was obtained, which (IFO 14701, FERM BP-1661)
 CC harbors the plasmid pPB796 expressing the muten represented here.
 CC The amino acid sequence Lys 87 to Ser 147 has been deleted.
 CC The muten has high stability and is low in toxicity.
 CC It can be used as a healing accelerator for e.g. burns, wounds
 CC or postoperative tissues or as a therapeutic drug based on its
 CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also
 CC be used as a reagent for acceleration of cell cultivation. A muten
 CC where at least one constituent cysteine is replaced by serine is
 CC preferred because the muten is highly stable and intermolecular bridges
 CC and linkages are reduced or eliminated.
 CC See also N81971-97.
 XX
 SQ Sequence 86 AA;

Query Match 100.0%; Score 239; DB 9; Length 86;
 Best Local Similarity 100.0%; Pred. No. 9.1e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFLLRHPDGRVDGVRKSDPHIKLQLAERGVSITKV 45
 Db 25 ycknggfllrhpdgvrvgvrekspdhiklqlqaergvvsitkv 69

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:36 ; Search time 94.87 Seconds
(without alignments)
7.569 Million cell updates/sec

Title: US-09-266-543-2

Sequence: 115
1 SNNNTYRSRKYSWYVALKR 21

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues

Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :

A_Geneseq_36:*

- 1: /SIDSI/gcgdata/geneseq/geneseq/AA1980.DAT:*
- 2: /SIDSI/gcgdata/geneseq/geneseq/AA1981.DAT:*
- 3: /SIDSI/gcgdata/geneseq/geneseq/AA1982.DAT:*
- 4: /SIDSI/gcgdata/geneseq/geneseq/AA1983.DAT:*
- 5: /SIDSI/gcgdata/geneseq/geneseq/AA1984.DAT:*
- 6: /SIDSI/gcgdata/geneseq/geneseq/AA1985.DAT:*
- 7: /SIDSI/gcgdata/geneseq/geneseq/AA1986.DAT:*
- 8: /SIDSI/gcgdata/geneseq/geneseq/AA1987.DAT:*
- 9: /SIDSI/gcgdata/geneseq/geneseq/AA1988.DAT:*
- 10: /SIDSI/gcgdata/geneseq/geneseq/AA1989.DAT:*
- 11: /SIDSI/gcgdata/geneseq/geneseq/AA1990.DAT:*
- 12: /SIDSI/gcgdata/geneseq/geneseq/AA1991.DAT:*
- 13: /SIDSI/gcgdata/geneseq/geneseq/AA1992.DAT:*
- 14: /SIDSI/gcgdata/geneseq/geneseq/AA1993.DAT:*
- 15: /SIDSI/gcgdata/geneseq/geneseq/AA1994.DAT:*
- 16: /SIDSI/gcgdata/geneseq/geneseq/AA1995.DAT:*
- 17: /SIDSI/gcgdata/geneseq/geneseq/AA1996.DAT:*
- 18: /SIDSI/gcgdata/geneseq/geneseq/AA1997.DAT:*
- 19: /SIDSI/gcgdata/geneseq/geneseq/AA1998.DAT:*
- 20: /SIDSI/gcgdata/geneseq/geneseq/AA1999.DAT:*
- 21: /SIDSI/gcgdata/geneseq/geneseq/AA2000.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	115	100.0	21	R43297	FGF antagonist bFG
2	115	100.0	28	P71557	Fibroblast growth
3	115	100.0	28	R43293	FGF antagonist bFG
4	115	100.0	43	R43274	FGF antagonist bFG
5	115	100.0	134	R65933	Rat fibroblast gfo
6	115	100.0	145	R34495	Rat basic fibrobla
7	115	100.0	146	P71145	Basic fibroblast g
8	115	100.0	146	R25943	Bovine basic FGF
9	115	100.0	146	R27177	Mammalian basic FG
10	115	100.0	146	R33278	bFGF. Ratcus ratt
11	115	100.0	146	Y81941	Recombinant bovine
12	115	100.0	147	P80613	Sequence of manufa

13	115	100.0	147	10	P90085	Bovine basic fibro
14	115	100.0	155	8	P70671	Sequence of bovine
15	115	100.0	155	18	W20029	Recombinant bovine
16	112	97.4	55	17	R93217	Partial fibroblast
17	112	97.4	86	13	R24341	FGF residues 70-15
18	112	97.4	107	9	P81939	Human basic fibrob
19	112	97.4	123	10	P90561	rhbFGF mutlein C123
20	112	97.4	129	9	P81940	Human basic fibrob
21	112	97.4	129	10	P90562	rhbFGF mutlein C129
22	112	97.4	129	10	P90564	rhbFGF mutlein C523
23	112	97.4	132	20	Y17995	Human basic fibrob
24	112	97.4	134	9	P81932	Human basic fibrob
25	112	97.4	135	15	P85932	Fibroblast growth
26	112	97.4	137	12	R14550	a-bFGFb63/73 hybr
27	112	97.4	138	10	P90563	rhbFGF mutlein C137
28	112	97.4	138	10	P90565	rhbFGF mutlein C523
29	112	97.4	139	9	P81937	Human basic fibrob
30	112	97.4	145	13	R24408	Sequence of basic
31	112	97.4	146	9	P82579	Human basic fibrob
32	112	97.4	146	12	R11427	Basic fibroblast g
33	112	97.4	146	13	R25197	Basic fibroblast g
34	112	97.4	146	13	R25423	bFGF derivative.
35	112	97.4	146	13	R27965	bFGF mutlein BFM3.
36	112	97.4	146	13	R27966	bFGF mutlein BFM5.
37	112	97.4	146	13	R27967	bFGF mutlein BFM5.
38	112	97.4	146	14	R34494	Human basic fibrob
39	112	97.4	146	14	R39190	Human basic fibrob
40	112	97.4	146	14	R39188	Human basic fibrob
41	112	97.4	146	14	R42835	bFGF mutlein C523.
42	112	97.4	146	15	R65925	Fibroblast growth
43	112	97.4	146	15	R65926	Fibroblast growth
44	112	97.4	146	15	R65927	Fibroblast growth
45	112	97.4	146	15	R65928	Fibroblast growth

ALIGNMENTS

RESULT 1	
R43297	
ID R43297 standard: peptide: 21 AA.	
AC R43297:	
XX	
DT 05-MAY-1994 (first entry)	
XX	
DE FGF antagonist bFGF(100-120)-NH2.	
XX	
KW Bovine; basic fibroblast growth factor; antagonist; mitogen;	
KW melanoma; glomerulonephritis; retinopathy.	
XX	
OS Synthetic.	
XX	
FH Key	Location/Qualifiers
FT Modified-site 21	
FT	/note="amidated"
XX	
PN <u>US252718-A</u>	
XX	
PD 12-OCT-1993.	
XX	
PF 22-APR-1986: 36US-0854843.	
XX	
PR 22-APR-1986: 36US-0854843.	
PR 14-NOV-1988: 38US-0270225.	
PR 27-APR-1992: 32US-0873773.	
XX	
PA (SALK) SALK INST BIOLOGICAL STUDIES.	
XX	
PI Batard JA, Ling NC;	
XX	
DR WPI: 1993-33615/42.	
XX	

PT New fibroblast growth factor peptide(s) - are FGF antagonists
 PT used to inhibit cell growth in culture or in disease e.g.
 PT retinopathy, glomerulonephritis, melanoma etc.
 XX
 PS Example 18B; Column 16; 12pp; English.
 CC The peptide bFGF(100-120)-NH2 exhibits very good inhibition of
 CC bFGF-induced mitosis, strongly inhibits bFGF binding to BHK cells
 CC and it binds itself to heparin.
 XX
 SQ Sequence 21 AA;

Query Match 100.0%; Score 115; DB 14; Length 21;
 Best Local Similarity 100.0%; Pred. No. 2e-10;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNYNTYRSRKYSWYVALKR 21
 Db 1 snnynltyrskyswyvalkr 21

RESULT 2

ID P71557 standard; Protein; 28 AA.
 AC P71557;

DT 01-MAY-1991 (first entry)

DE Fibroblast Growth Factor antagonist #2.

KW fibroblast growth factor; FGF; heparin-binding.

OS Synthetic.

PN EP246753-A.

XX 25-NOV-1987.

PF 21-APR-1987; 87EP-0303489.

PR 22-APR-1986; 86US-0854843.

PA (SALK) SALK INST FOR BIOL STUD.

PI Baird AJ, Ling NCK;

DR WPI; 1987-328974/47.

PT New polypeptide antagonists of fibroblast growth factor -
 PT effective against basic or acidic forms, useful eg for treating
 PT proliferative diseases

PS Claim 1; Page 15; 18pp; English.

CC The C-terminal group is -NH2 or -OH. The invention also covers
 CC fragments of this peptide which retain the ability to bind with
 CC heparin or with the FGF receptor. The sequence includes the
 CC tetrapeptide Arg-Ser-Arg-Tyr which constitutes residues 107-110 of
 CC basic FGF. They are also antagonistic to acidic FGF. The antagonists
 CC modulate growth of epithelial (and related) cells and can be used
 CC diagnostically or therapeutically, eg to treat proliferative
 CC diseases of eyes and kidneys, some types of tumours and adrenal
 CC vascularisation.
 CC See also P71542, P71558-9, P71561.

XX Sequence 28 AA;

Query Match

Best Local Similarity 100.0%; Score 115; DB 8; Length 26;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNYNTYRSRKYSWYVALKR 21
 Db 8 snnynltyrskyswyvalkr 28

RESULT 3

ID R43293 standard; peptide; 28 AA.
 AC R43293;

DT 05-MAY-1994 (first entry)

DE FGF antagonist bFGF(93-120)-NH2.

KW Bovine; basic fibroblast growth factor; antagonist; mitogen;
 KW melanoma; glomerulonephritis; retinopathy.

OS Synthetic.

FT Key Location/Qualifiers
 FT Modified-site 28 /note="amidated"

PN US5252718-A.

PD 12-OCT-1993.

PF 22-APR-1986; 86US-0854843.

PR 22-APR-1986; 86US-0854843.

PR 14-NOV-1988; 88US-0270225.

PR 27-APR-1992; 92US-0873773.

PA (SALK) SALK INST BIOLOGICAL STUDIES.

PI Baird JA, Ling NC;

DR WPI; 1993-336156/42.

PT New fibroblast growth factor peptide(s) - are FGF antagonists
 PT used to inhibit cell growth in culture or in disease e.g.
 PT retinopathy, glomerulonephritis, melanoma etc.

PS Example 16; Column 15; 12pp; English.

CC The peptide bFGF(93-120)-NH2 is a specific example of a peptide of
 CC the invention; it has full antagonist activity to both basal and
 CC bFGF-stimulated endothelial cell growth, it binds to heparin and it
 CC inhibits the binding of bFGF to BHK cells.

SQ Sequence 28 AA;

Query Match 100.0%; Score 115; DB 14; Length 28;
 Best Local Similarity 100.0%; Pred. No. 2.7e-10;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNYNTYRSRKYSWYVALKR 21
 Db 8 snnynltyrskyswyvalkr 28

RESULT 4

ID R43274 standard; peptide; 43 AA.
 AC R43274;

DT 05-MAY-1994 (first entry)

DE FGF antagonist bFGF(93-135).

```

XX  Bovine: basic fibroblast growth factor; antagonist; mitogen;
KW  melanoma; glomerulonephritis; retinopathy.
XX
XX  Synthetic.
OS
XX
XX  Key
FH  Modified-site 43 Location/Qualifiers
FT  Peptide /note= "opt. amidated"
FT  Peptide /note= "Claim 2 (C-terminally amidated)"
FT  Peptide /note= "Claim 3 (opt. C-terminally amidated)"
FT  Peptide /note= "Claim 4 (opt. C-terminally amidated)"
FT  Peptide /note= "Claim 5 (C-terminally amidated)"
FT  Peptide /note= "Claim 6 (C-terminally amidated)"
FT  Peptide /note= "Claim 6 (C-terminally amidated)"
XX
XX  US5252718-A.
XX
XX  12-OCT-1993.
XX
XX  22-APR-1986; 86US-0854843.
XX
XX  22-APR-1986; 86US-0854843.
XX  14-NOV-1986; 86US-0270225.
XX  27-APR-1992; 92US-0873773.
XX
XX  (SALK ) SALK INST BIOLOGICAL STUDIES.
XX
XX  Baird JA, Ling NC;
XX
XX  WPI; 1993-336156/42.
XX
XX  New fibroblast growth factor peptide(s) - are FGF antagonists
XX  used to inhibit cell growth in culture or in disease e.g.
XX  retinopathy, glomerulonephritis, melanoma etc.
XX
XX  Claim 1; Column 2; 12pp; English.
XX
XX  Peptides having the sequence of amino acids 93-135 of bFGF (R43274)
XX  or C-terminally truncated fragments which contain the sequence
XX  YRSKRYSWR are claimed. The peptides are FGF antagonists and can be
XX  used to regulate cell growth and proliferative diseases.
XX  N.B. the sequence given in Claim 1 and assigned GENESEQ Accession
XX  No. R43275 includes an additional Tyr residue between Tyr115 and
XX  Val116; this residue does not, however, appear in any of the peptides
XX  "according to Claim 1" (see Features Table in R43274).
XX
XX  Sequence 43 AA:
SQ

```

```

Query Match 100.0%; Score 115; DB 14; Length 43;
Best Local Similarity 100.0%; Pred. No. 4.2e-10;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

QY 1 SNNYNTYRSKRYSWYVALKR 21
    |||||
DB 8 smnyntyrskryswyvalkr 28

```

```

RESULT 5
ID R65933 standard; Protein; 134 AA.
XX
XX R65933;
XX
XX 10-JUL-1995 (first entry)
XX
XX Rat fibroblast growth factor (FGF) partial sequence.
DE
XX

```

```

KW Fibroblast growth factor; FGF; glycosylation sites;
KW traumas; burns; thrombosis; arteriosclerosis.
XX
XX Rattus rattus.
OS
XX
XX US5360896-A.
XX
XX 01-NOV-1994.
XX
XX 20-APR-1990; 90US-0511469.
XX
XX 26-APR-1990; 90JP-0108595.
XX
XX (TAKE ) TAKEDA CHEM IND LTD.
XX
XX Igarashi K, Sasada R, Senoo M;
XX
XX WPI; 1994-349502/43.
XX
XX Mutens of naturally occurring fibroblast growth factor - into
XX which have been introduced at least one glycosylation site.
XX
XX Claim 9; Column 4; 31pp; English.
XX
XX Any naturally occurring fibroblast growth factor (FGF) containing
XX one of the sequences described in R65930-R65935, into which at
XX least one artificial glycosylation site has been induced, where
XX the site/s are glycosylated with sugar chains selected from the
XX following group N-acetyl glucosamine, N-acetyl galactosamine,
XX mannose, galactose, fucose and cyalic acid, is claimed. These
XX mutants have improved stability, intracellular productivity and
XX cell growth promoting activity, they can also be produced in
XX larger amounts than FGF isolated from natural sources. The
XX mutants can be used in the treatment of traumas and burns, and
XX in the production of a preventative therapeutic medicine for
XX thrombosis and arteriosclerosis.
XX
XX Sequence 134 AA:
SQ

```

```

Query Match 100.0%; Score 115; DB 15; Length 134;
Best Local Similarity 100.0%; Pred. No. 1.4e-09;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

QY 1 SNNYNTYRSKRYSWYVALKR 21
    |||||
DB 88 smnyntyrskryswyvalkr 108

```

```

RESULT 6
ID R34495 standard; Protein; 145 AA.
XX
XX R34495;
XX
XX 06-AUG-1993 (first entry)
XX
XX Rat basic Fibroblast Growth Factor.
XX
XX bFGF; mutens; glycosylation site; glycoprotein.
XX
XX Rattus.
OS
XX
XX JP05076356-A.
XX
XX 30-MAR-1993.
XX
XX 30-MAY-1991; 91JP-0127435.
XX
XX 31-MAY-1990; 90JP-0143388.
XX
XX (TAKE ) TAKEDA CHEM IND LTD.
XX

```

DR WPI; 1993-139564/17.

XX FGF mutein prep. useful for therapy of burn or thrombosis - by
PT transformation of lymphocyte-contained animal cell by vector
PT contg. DNA encoding FGF mutein
XX

PS Disclosure; Page 3; 23pp; Japanese.

CC The invention covers muteins of FGF (esp. bFGF) which contain at
CC least one glycosylation site. The muteins can be used to treat burns
CC and thrombosis.
XX

Sequence 145 AA;

Query Match

Best Local Similarity 100.0%; Score 115; DB 14; Length 145;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 SNNYNTYRSRRYSWYVALKR 21
Db 99 smnyntyrskyswyvalkr 119
|||||

RESULT 7

P71145

ID P71145 standard; protein; 146 AA.

XX P71145;

DT 11-MAR-1991 (first entry)

DE Basic fibroblast growth factor.

KW Mitogenic; angiogenic; bFGF.

OS Bos taurus.

XX

XX W08607595-A.

PD 31-DEC-1986.

XX

XX 18-JUN-1986; 86WO-0501318.

PR 20-JUN-1985; 85US-0747154.

XX

PA (SALK) SALK INST FOR BIOL. STUD.

PI Esch FS, Bohlen P, Baird A, Gospodarowicz DJ, Ling NC;

DR WPI; 1987-007193/01.

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

Db 100 smnyntyrskyswyvalkr 120
|||||

RESULT 8

R25943

ID R25943 standard; peptide; 146 AA.

XX R25943;

AC R25943;

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

Db 100 smnyntyrskyswyvalkr 120
|||||

RESULT 9

R27717

ID R27717 standard; protein; 146 AA.

XX R27717;

AC R27717;

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

Db 100 smnyntyrskyswyvalkr 120
|||||

RESULT 10

R27717

ID R27717 standard; protein; 146 AA.

XX R27717;

AC R27717;

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

Db 100 smnyntyrskyswyvalkr 120
|||||

RESULT 11

R27717

ID R27717 standard; protein; 146 AA.

XX R27717;

AC R27717;

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

Db 100 smnyntyrskyswyvalkr 120
|||||

RESULT 12

R27717

ID R27717 standard; protein; 146 AA.

XX R27717;

AC R27717;

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

Db 100 smnyntyrskyswyvalkr 120
|||||

RESULT 13

R27717

ID R27717 standard; protein; 146 AA.

XX R27717;

AC R27717;

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

XX

Db 100 smnyntyrskyswyvalkr 120
|||||

RESULT 14

R27717

ID R27717 standard; protein; 146 AA.

XX R27717;

AC R27717;

XX

XX

XX

XX

XX

XX

XX

XX Mammalian basic FGF.
 DE Basic fibroblast growth factor; FGF; cation exchange HPLC;
 XX reverse-phase HPLC; homogeneity; recombinant DNA; disulphide bond;
 KW non-toxic salt; pharmaceutical; diagnostic; therapeutic;
 KW in vitro cell proliferation; nerve regeneration; wound healing.
 XX
 OS Bos taurus.
 XX
 PN US5155214-A.
 XX
 PD 13-OCT-1992.
 XX
 PF 05-MAR-1984; 84US-0586518.
 XX
 PR 05-MAR-1984; 84US-0586518.
 PR 09-NOV-1984; 84US-0670160.
 PR 20-JUN-1985; 85US-0747154.
 PR 10-DEC-1986; 86US-0940524.
 PR 31-DEC-1987; 87US-0139953.
 PR 08-JAN-1990; 90US-0462126.
 XX
 PA (SALK) SALK INST BIOLOGICAL STUDIES.
 XX
 PI Baird AJ, Bohlen P, Esch FS, Gospodarowicz D, Ling NC;
 XX
 DR WPI: 1992-365559/44.
 XX
 PT Purified mammalian basic fibroblast growth factor - produced by
 PT recombinant method, is useful e.g. for promoting wound healing
 XX
 PS Claim 1; Column 24; 24pp; English.
 XX
 CC This substantially pure protein was purified from partially purified
 CC basic fibroblast growth factor (FGF) by cation exchange HPLC and two
 CC reverse-phase HPLC steps. Having purified this protein to apparent
 CC homogeneity the amino acid sequence can be determined and pure basic
 CC FGF may be synthesised using recombinant DNA techniques (see also
 CC Q23741). This peptide is biologically active and exhibits either no
 CC or random disulphide bonding within the molecule. This protein, an
 CC analogue, a biologically active fragment, or a non-toxic salt of it
 CC may be used in a pharmaceutical composition for diagnostic or
 CC therapeutic uses. This may be used in in vitro cell proliferation
 CC procedures, eg. nerve regeneration and wound healing.
 CC
 XX
 SQ Sequence 146 AA;
 Query Match 100.0%; Score 115; DB 13; Length 146;
 Best Local Similarity 100.0%; Pred. No. 1.6e-09;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 SNNYNTYRSRKYSWYVALKR 21
 Db 100 snnyntryrkysswyvalkr 120
 ||||||||||||||||
 RESULT 10
 R33278
 ID R33278 standard; Protein; 146 AA.
 XX
 AC R33278;
 XX
 DT 16-JUL-1993 (first entry)
 XX
 DE bFGF.
 XX
 KW Rat; bFGF; vector; T7 promoter; active form.
 XX
 OS Rattus rattus.
 XX
 PN JP05041988-A.

XX 23-FEB-1993.
 PD 07-JUN-1991; 91JP-0136553.
 XX
 PF 07-JUN-1990; 90JP-0149656.
 PR 15-FEB-1991; 91JP-0022207.
 PR 06-JUN-1991; 91JP-0134768.
 XX
 PA (TAKE) TAKEDA CHEM IND LTD.
 XX
 DR WPI: 1993-103610/13.
 DR N-PSDB; Q38566.
 XX
 PT Prepn. of rat bFGF protein - by culture of transformants contg.
 PT vector contg. rat bFGF coding nucleotide sequence and T7 promoter
 PT and purificn. using chromatography
 XX
 PS Disclosure; Page 10; 12pp; Japanese.
 XX
 CC The sequence given represents rat bFGF. The cDNA encoding this
 CC peptide was used in the construction of a vector also containing the
 CC T7 promoter. The vector can be used to produce large amounts of the
 CC active form of rat bFGF.
 CC
 XX
 SQ Sequence 146 AA;
 Query Match 100.0%; Score 115; DB 14; Length 146;
 Best Local Similarity 100.0%; Pred. No. 1.6e-09;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 SNNYNTYRSRKYSWYVALKR 21
 Db 100 snnyntryrkysswyvalkr 120
 ||||||||||||||||
 RESULT 11
 Y81941
 ID Y81941 standard; Protein; 146 AA.
 XX
 AC Y81941;
 XX
 DT 30-JUN-2000 (first entry)
 XX
 DE Recombinant bovine FGF-2 protein sequence.
 XX
 KW FGF-2; cow; fibroblast growth factor 2; angiogenesis; unstable angina;
 KW coronary artery disease; human; acute myocardial infarction; therapy.
 XX
 OS Bos taurus.
 XX
 PN WO200013701-A2.
 XX
 PD 16-MAR-2000.
 XX
 PF 27-AUG-1999; 99WO-US19770.
 XX
 PR 03-SEP-1998; 98US-0145743.
 PR 13-OCT-1998; 98US-0104102.
 PR 13-OCT-1998; 98US-0104103.
 XX
 PA (CHIR) CHIRON CORP.
 PA (WHIT/) WHITEHOUSE M J.
 XX
 DR WPI: 2000-256860/22.
 DR N-PSDB; A07355.
 XX
 PT Composition for inducing angiogenesis or treating coronary artery
 PT disease comprises fibroblast growth factor-2 or angiogenically active
 PT fragment or mutain -
 XX
 PS Claim 3; Page 53-59; 60pp; English.

XX This sequence represents a recombinant bovine fibroblast growth factor-2
 CC (FGF-2) sequence. The invention relates to a unit dose composition
 CC (1) for inducing angiogenesis in a human, comprising 0.008-7.2 mg of
 CC FGF-2 or an antigenically active fragment or mutagen of FGF-2. The
 CC composition (1) and recombinant FGF-2 are useful for treating coronary
 CC artery disease or inducing angiogenesis in a human patient. Recombinant
 CC FGF-2 may be used to treat unstable angina and acute myocardial
 CC infarction.
 CC
 SQ Sequence 146 AA;

Query Match 100.0%; Score 115; DB 21; Length 146;
 Best Local Similarity 100.0%; Pred. No. 1.6e-09;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 SNNYTYRSRKYSWYVALKR 21
 DB 100 smnytyrskyswyvalkr 120

RESULT 12

ID P80613 standard; protein; 147 AA.
 AC P80613;

DT 17-SEP-1990 (first entry)
 XX

DE Sequence of manufactured bovine basic fibroblast growth factor
 (bFGF) for expression in E. coli.
 XX

KW Bovine basic fibroblast growth factor (bFGF); wound healing; mitogen;
 XX phase vector M13mp18.
 OS Bovine.
 XX

Key Location/Qualifiers
 FT Misc-difference 113
 FT Misc-difference 129 /note="changed to Thr"
 FT Misc-difference 129 /note="changed to Ser"

PN EP275204-A.
 XX

PD 20-JUL-1988.
 XX

PE 14-JAN-1988; 88EP-0300303.
 XX

PR 03-NOV-1987; 87US-0116430.
 XX

PA (AMGE-) AMGEN INC.
 XX

PI Banks AR, Fox GM;
 XX

DR WPI: 1988-199640-29.
 DR N-PSDB; N81236.
 XX

PT DNA encoding human basic fibroblast growth factor -
 used for expression in an E coli host with purification using
 non-heparin conty. chromatographic column
 XX

PS Example; Fig 2; 21pp; English.
 XX

CC The published AA sequence of bovine basic FGF was used as a basis for the
 CC synthesis of mfg. bFGF gene for expression in E. coli. The nucleotide
 CC sequence of this mfg. gene includes codons most often used by E. coli and
 CC the inclusion of convenient restriction sites. Oligonucleotides corresp.
 CC to both strands of the gene were synthesized in overlapping sections and
 CC assembled into 2 larger sections by hybridization and subsequent ligation.
 CC The 2 larger sections were then cloned into an appropri. phage vector
 CC (M13mp18) for nucleotide sequence analysis. The sections were then

CC ligated into an expression vector and introduced into E. coli. Bovine
 CC and human basic FGF are known to differ by only two AAs. Site directed
 CC mutagenesis was used to convert the bovine gene into one coding for the
 CC human FGF (see FT). The FGF is a potent mitogen for a wide variety of
 CC cells of mesodermal origin and may be chemotactic for endothelial cells
 CC and fibroblasts. The basic FGF induces neovascularisation and may be
 CC used in accelerating wound healing.
 CC
 SQ Sequence 147 AA;

Query Match 100.0%; Score 115; DB 9; Length 147;
 Best Local Similarity 100.0%; Pred. No. 1.6e-09;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 SNNYTYRSRKYSWYVALKR 21
 DB 101 smnytyrskyswyvalkr 121

RESULT 13

ID P90085 standard; protein; 147 AA.
 AC P90085;

DT 01-NOV-1989 (first entry)
 XX

DE Bovine basic fibroblast growth factor.
 XX

KW Bovine basic fibroblast growth factor; analogues; heal
 XX wounds; tissue generation.
 OS Bos taurus.
 XX

PN W08904832-A.
 XX

PD 01-JUN-1989.
 XX

PE 22-NOV-1988; 88WO-US04189.
 XX

PR 24-NOV-1987; 87US-0271521.
 XX

PA (AMGE) AMGEN INC.
 XX

PI Arakawa T, Fox GM;
 XX

DR WPI: 1989-178359/24.
 DR N-PSDB; N90034.
 XX

PT Stable basic fibroblast growth factor analogues
 used to treat wounds and generate tissue and organs.
 XX
 PS Disclosure; fig 2; 67pp; English.
 XX

CC Bovine basic fibroblast growth factor (bFGF), which is
 CC converted by modified base features to analogues and to human bFGF
 CC by site-directed mutagenesis of the DNA encoding it (see N90034).
 CC
 SQ Sequence 147 AA;

Query Match 100.0%; Score 115; DB 10; Length 147;
 Best Local Similarity 100.0%; Pred. No. 1.6e-09;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYTYRSRKYSWYVALKR 21
 DB 101 smnytyrskyswyvalkr 121

RESULT 14
 P70671


```

ID P70671 standard; Protein; 155 AA.
XX
AC P70671;
XX
DT 18-APR-1991 (first entry)
XX
DE Sequence of bovine basic fibroblast growth factor (FGF).
XX
KM Wound healing; tissue repair; tumour probe.
XX
OS Bos taurus.
XX
FH Key Location/Qualifiers
FT Peptide 1..9
FT Protein 10..155
XX
PN W08701728-A.
XX
PD 26-MAR-1987.
XX
PE 11-SEP-1986; 86WO-US01879.
XX
PR 30-MAY-1986; 86US-0869382.
PR 12-SEP-1985; 85US-0775521.
PR 16-DEC-1985; 85US-0809163.
XX
PA (BIOT-) BIOTECHN RES PARTNE.
XX
PI Fiddes JC, Abraham JA;
XX
DR WPI; 1987-093786/13.
XX
DR N-PSDB; N71024.
XX
PT New DNA sequences encoding mammalian fibroblast growth factors -
PT useful in prodn. of pure factors for use in wound healing and
PT tissue repair and of probe for tumour testing
XX
PS Claim 11; Fig 3; 89pp; English.
XX
CC The N-terminal AA sequence of both acidic and basic bovine FGF are
CC used to construct long probes to screen human and bovine genomic
CC libraries for FGF genes. Isolated sequences are used in vector
CC construction etc. and used to transform CV-1 cells for FGF prodn.
XX
SQ Sequence 155 AA;

Query Match 100.0%; Score 115; DB 8; Length 155;
Best Local Similarity 100.0%; Pred. No. 1.7e-09;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSRKYSSWYVALKR 21
   |||||||||||||||||||
DB 109 snnynctyrskrkysswyvalkr 129

RESULT 15
W20029
ID W20029 standard; Protein; 155 AA.
XX
AC W20029;
XX
DT 18-SEP-1997 (first entry)
XX
DE Recombinant bovine basic fibroblast growth factor.
XX
KM FGF; fibroblast growth factor; basic; acidic; wound healing;
KM neurodegenerative disease; Parkinson's; Alzheimer's disease;
KM bone fracture; biologically active; embolism.
XX
OS Bos taurus.
XX
FH Key Location/Qualifiers

```

```

FT Peptide 1..9
FT /label= sig_peptide
FT Protein 10..155
FT /label= mat_protein
XX
PN US5604293-A.
XX
PD 18-FEB-1997.
XX
PE 12-SEP-1985; 85US-0775521.
XX
PR 15-MAY-1987; 87US-0050706.
PR 12-SEP-1985; 85US-0775521.
PR 16-DEC-1985; 85US-0809163.
PR 30-MAY-1986; 86US-0869382.
PR 30-MAR-1992; 92US-0860688.
PR 01-APR-1994; 94US-0221462.
XX
PA (SCIO-) SCIOS INC.
XX
PI Abraham JA, Fiddes JC;
XX
DR WPI; 1997-234676/21.
XX
DR N-PSDB; T71236.
XX
PT New high purity, recombinant human basic fibroblast growth factor -
PT for promoting wound healing and treating neurodegenerative
PT diseases, suitable for production on large scale
XX
PS Example 5; Fig 3; 34pp; English.
XX
CC W20029 is a recombinant bovine basic fibroblast growth factor (bFGF).
CC Recombinant bFGF is used to promote healing of wounds, bone fractures,
CC damaged myocardial tissue etc. and, since it increases neuronal
CC survival and promotes neurite outgrowth, may also be used in treatment
CC of neurological disorders such as Alzheimer's and Parkinson's diseases.
CC bFGF may also be used for detection of specific inhibitors; for
CC treatment of cell cultures in vitro before transplant and for inducing
CC release of tissue plasminogen activator or collagenase, e.g. for
CC treatment of a chronic tendency to form embolism. Recombinant bFGF can
CC be produced on a large scale.
XX
SQ Sequence 155 AA;

Query Match 100.0%; Score 115; DB 18; Length 155;
Best Local Similarity 100.0%; Pred. No. 1.7e-09;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSRKYSSWYVALKR 21
   |||||||||||||||||||
DB 109 snnynctyrskrkysswyvalkr 129

```

Search completed: November 9, 2000, 15:30:37
Job time: 102 sec

Thu Nov 9 15:49:29 2000

us-09-266-543-2.rag

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:40 ; Search time 94.87 seconds
(without alignments)
5.767 Million cell updates/sec

Title: US-09-266-543-9

Perfect score: 86

Sequence: 1 CEESITMQIRKPH 16

Scoring table:

BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues

Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

A.Geneseq_36.*
1: /SIDSI/gcgdata/geneseq/geneseq/AA1980.DAT.*
2: /SIDSI/gcgdata/geneseq/geneseq/AA1981.DAT.*
3: /SIDSI/gcgdata/geneseq/geneseq/AA1982.DAT.*
4: /SIDSI/gcgdata/geneseq/geneseq/AA1983.DAT.*
5: /SIDSI/gcgdata/geneseq/geneseq/AA1984.DAT.*
6: /SIDSI/gcgdata/geneseq/geneseq/AA1985.DAT.*
7: /SIDSI/gcgdata/geneseq/geneseq/AA1986.DAT.*
8: /SIDSI/gcgdata/geneseq/geneseq/AA1987.DAT.*
9: /SIDSI/gcgdata/geneseq/geneseq/AA1988.DAT.*
10: /SIDSI/gcgdata/geneseq/geneseq/AA1989.DAT.*
11: /SIDSI/gcgdata/geneseq/geneseq/AA1990.DAT.*
12: /SIDSI/gcgdata/geneseq/geneseq/AA1991.DAT.*
13: /SIDSI/gcgdata/geneseq/geneseq/AA1992.DAT.*
14: /SIDSI/gcgdata/geneseq/geneseq/AA1993.DAT.*
15: /SIDSI/gcgdata/geneseq/geneseq/AA1994.DAT.*
16: /SIDSI/gcgdata/geneseq/geneseq/AA1995.DAT.*
17: /SIDSI/gcgdata/geneseq/geneseq/AA1996.DAT.*
18: /SIDSI/gcgdata/geneseq/geneseq/AA1997.DAT.*
19: /SIDSI/gcgdata/geneseq/geneseq/AA1998.DAT.*
20: /SIDSI/gcgdata/geneseq/geneseq/AA1999.DAT.*
21: /SIDSI/gcgdata/geneseq/geneseq/AA2000.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	77	89.5	36	19	AA9805
2	77	89.5	110	21	Y69417
3	77	89.5	110	21	Y83038
4	77	89.5	121	12	R1385
5	77	89.5	121	14	R42607
6	77	89.5	121	17	W09091
7	77	89.5	121	17	W03677
8	77	89.5	121	17	R66043
9	77	89.5	121	17	R93977
10	77	89.5	121	19	W40597
11	77	89.5	121	20	Y23943
12	77	89.5	121	20	Y08278

13	77	89.5	145	19	W56693	Vascular endotheli
14	77	89.5	145	20	Y08279	Human growth facto
15	77	89.5	145	21	Y69413	Amino acid sequenc
16	77	89.5	145	21	Y83034	Human vascular end
17	77	89.5	147	16	R91075	Human vascular end
18	77	89.5	147	17	R94001	VEGF121. Homo sap
19	77	89.5	147	19	W62524	Amino acid sequenc
20	77	89.5	147	20	Y33437	Parapox virus VEGF
21	77	89.5	147	21	Y90402	VEGF encoded by cl
22	77	89.5	147	21	Y69412	Amino acid sequenc
23	77	89.5	147	21	Y83033	Human vascular end
24	77	89.5	148	17	R94032	VEGF121 Cys+4. Ho
25	77	89.5	148	17	R94032	VEGF121 Cys+2. Ho
26	77	89.5	164	20	Y43482	Amino acid sequenc
27	77	89.5	165	12	R10917	Human vascular end
28	77	89.5	165	14	R38921	Human VEGF-165. H
29	77	89.5	165	18	W31085	Vascular endotheli
30	77	89.5	165	18	W31089	Vascular endotheli
31	77	89.5	165	18	W31094	Vascular endotheli
32	77	89.5	165	20	Y08280	Human growth facto
33	77	89.5	171	20	Y07473	Human VEGF(145) pr
34	77	89.5	188	20	Y43484	Amino acid sequenc
35	77	89.5	189	20	Y08281	Human growth facto
36	77	89.5	189	21	Y92005	Human vascular end
37	77	89.5	191	11	R08002	Human vascular end
38	77	89.5	191	16	R91076	Human vascular end
39	77	89.5	191	17	W00724	Human vascular end
40	77	89.5	191	17	R94002	VEGF165. Homo sap
41	77	89.5	191	18	W38242	Vascular endotheli
42	77	89.5	191	19	W63331	Human VEGF protein
43	77	89.5	191	19	W62525	Amino acid sequenc
44	77	89.5	191	19	W57398	Variant vascular e
45	77	89.5	191	19	W57399	Variant vascular e

ALIGNMENTS

RESULT 1	
W49805	W49805 standard; peptide; 36 AA.
ID	
AC	W49805;
XX	
DT	24-SEP-1998 (first entry)
XX	
DE	Amino acid sequence of ligand oligopeptides.
XX	
KW	Ligand oligopeptide; 4-membered complex; gene transfer system;
KW	tumour gene therapy; polycationic polypeptide; cancer;
KW	endosome-release oligopeptide; malignant tumour cell;
KW	tumour vascular endothelialocytes.
XX	
OS	Synthetic.
OS	
PN	W09818951-A1.
XX	
PD	07-MAY-1998.
XX	
PF	27-OCT-1997; 37MO-CN00106.
XX	
PR	31-OCT-1996; 36CN-0116557.
XX	
PA	(SHAN-) SHANGHAI CANCER INST.
XX	
PI	Gu J, Tian P;
XX	
DR	WPI; 1998-272233/24.
XX	
PT	Novel receptor-mediated gene transfer systems for targeting tumour
PT	gene therapy - by binding to growth factor receptor with their
PT	terminal exogenous DNA component, used to treat e.g. malignant
PT	tumour cells and tumour vascular endothelialocytes, and in gene

PT therapy

XX Claim 5; Page 32; 67pp; Japanese.

CC This is the amino acid sequence of ligand oligopeptide used in the
 CC method of the invention to create a 4-membered complex gene transfer
 CC system for targeting tumour gene therapy is formed from a 3-membered
 CC compound carrier of a ligand oligopeptide/polyanionic
 CC DNA. The complexed endosome-release oligopeptide/polyanionic
 CC form of malignant tumour cells and tumour vascular endothelial cells,
 CC and in gene therapy.

SO Sequence 36 AA;

Query Match 89.5%; Score 77; DB 19; Length 36;
 Best Local Similarity 100.0%; Pred. No. 6.7e-08;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 2 EESNTMQIMRKPH 16
 DB 5 eesntmqimrkph 19

RESULT 2

ID Y69417 169417 standard; Protein; 110 AA.

AC Y69417;

DT 03-JUL-2000 (first entry)

DE Amino acid sequence of vascular endothelial growth factor 110.

XX Human; vascular endothelial growth factor: VEGF 110; angiogenic factor;
 KW blood vessel injury; vascular injury; microvascular angiopathy;
 KW thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;
 KW toxic shock syndrome; venom; hypercoagulable state; platelet activation;
 KW intravascular coagulation; thrombosis; preeclampsia; sepsis; pancreatitis;
 KW acute renal failure; myocardial infarction; ischemic bowel disease;
 KW stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;
 KW acute respiratory distress syndrome; pneumonia; pulmonary emboli;
 KW birth prematurity disorder; wound; allergy; hypersensitivity;
 KW autoimmune disease; organ transplant; focal glomerulosclerosis;
 KW amyloidosis.

OS Homo sapiens.

PN WO200013702-A2.

PD 16-MAR-2000.

PF 09-SEP-1999; 99WO-US20480.

PR 09-SEP-1998; 98US-0099694.

PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.

PA (SCIO-) SCIOS INC.

PI Schreiner GF, Johnson RJ;

DR WPI; 2000-256861/22.

PT Novel methods and compositions for the prevention and treatment of
 PT microvascular angiopathies by administration of angiogenic factors such
 PT as vascular endothelial growth factor (VEGF)
 PS Disclosure; Fig 12; 46pp; English.

CC The present sequence represents native human vascular endothelial growth

CC factor (VEGF) 110. VEGF is an angiogenic factor. VEGF proteins are used
 CC for the prevention or repair of injury to blood vessels or associated
 CC nonvascular tissues (served by the blood vessels) and for the prevention
 CC and repair of vascular injury associated with microvascular angiopathy,
 CC particularly thrombotic microangiopathy. The proteins methods may also
 CC be used for the prevention and treatment of kidney diseases associated
 CC with injury to, or atrophy of, the vasculature of the glomerulus and
 CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,
 CC hypercoagulable states, platelet activation or aggregation, thrombosis,
 CC preeclampsia, thrombotic thrombocytopenia purpura, disseminated
 CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,
 CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung
 CC endothelium injury, acute respiratory distress syndrome, toxic alveolar
 CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,
 CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ
 CC transplants, focal glomerulosclerosis, and amyloidosis.

SO Sequence 110 AA;

Query Match 89.5%; Score 77; DB 21; Length 110;
 Best Local Similarity 100.0%; Pred. No. 2.4e-07;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 2 EESNTMQIMRKPH 16
 DB 72 eesntmqimrkph 86

RESULT 3

ID Y83038 83038 standard; Protein; 110 AA.

AC Y83038;

DT 04-JUL-2000 (first entry)

DE Human vascular endothelial growth factor (hVEGF110).

XX Vascular endothelial growth factor; human; angiogenesis; VEGF;
 KW capillary formation; hypertension; treatment; kidney; CNS; stroke;
 KW meningitis; central nervous system; tumour; infection; bone growth;
 KW hypoxia; hypercapnia; fibrosis; inflammatory bowel disease;
 KW diarrhoea; allografts; cardiac valve.

OS Homo sapiens.

PN WO200013703-A2.

PD 16-MAR-2000.

PF 09-SEP-1999; 99WO-US20481.

PR 09-SEP-1998; 98US-0099694.

PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.

PA (SCIO-) SCIOS INC.

PI Schreiner GF, Johnson RJ;

DR WPI; 2000-256862/22.

PT Novel methods for treating hypertension by administering a factor which
 PT increases angiogenesis and/or vascular permeability
 PS Disclosure; Figure 11; 51pp; English.

CC Administering vascular endothelial growth factor (VEGF) can be used
 CC for treating hypertension (especially salt-dependent hypertension)
 CC Administration of VEGF promotes angiogenesis and/or vascular or

capillary permeability. The method is also useful in treating disorders related to abnormal transport of solutes across endothelial cells. Such disorders include the treatment or prevention of kidney disease associated with impaired filtration or excretion of solutes; the treatment or prevention of diseases of the central nervous system associated with alterations in cerebrospinal fluid, e.g. stroke, meningitis, tumour, infections, and bone growth disorders; treatment or prevention of hypoxia or hypercapnia or fibrosis arising from accumulation of fluid secretions in the lungs, e.g. acute respiratory distress syndrome, toxic alveolar injury, pneumonia, infections, surgical intervention, cystic fibrosis; treatment or prevention of pulmonary dysfunction arising from injury to the pulmonary endothelium, including disorders arising from premature birth, and pulmonary hypertension; treatment or prevention of disease arising from disordered transport of fluid and solutes across the intestinal epithelium, e.g. inflammatory bowel disease, diarrhoea; treatment or prevention of ascites accumulation in the peritoneum; enhancement of efficacy of solute flux; preservation or enhancement of function of organ allografts; and treatment of cardiac valve disease. This sequence is the native human vascular endothelial growth factor hVEGF10. The activity of VEGF is mediated by interaction with specific receptors on target tissues, most notably the vascular endothelium. VEGF exists as five different length monomer chains due to alternative splicing of the VEGF RNA transcript.

CC Sequence 110 AA;

Query Match 89.5%; Score 77; DB 21; Length 110;
Best Local Similarity 100.0%; Pred. No. 2.4e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITQIMRIKPH 16
| | | | | | | | | | | | | | | | | |
Db 72 eesnitqimrikph 86

RESULT 4

R11385
ID R11385 standard; Protein; 121 AA.

AC R11385;

DT 08-MAY-1991 (first entry)

DE Human vascular endothelial cell growth factor 121.

KW Bovine vascular endothelial cell growth factor; angiogenesis;

KW wound healing; hVEGF; PDGF.

OS Bos taurus.

PN W09102058-A.

PD 21-FEB-1991.

PE 27-JUL-1990; 90MO-US04227.

PR 14-DEC-1989; 89US-0450883.

PR 27-JUL-1989; 89US-0387545.

PA (CALB-) CALIF BIOTECH INC.

PI Tischer ER, Abraham, Fiddes JC, Mitchell RL;

DR WPI; 1991-073534/10.

DR N-PSDB; Q11099.

XX DNA encoding vascular endothelial cell growth factor - used for
PT producing the factor for angiogenesis and re-endothelialisation
PT in wound healing
XX Disclosure; Fig 7(1-2); 94pp; English.

XX The two forms of VEGF (Q10797 and Q10917) which arise through
CC different message splicing, have different properties. In partic.
CC hVEGF121 does not bind to heparin leaving more of the protein free to
CC bind to VEGF receptor and increase the half-life and distribution of
CC the protein in circulation, whereas hVEGF165 binds heparin strongly.
CC The product can be used for angiogenesis and re-endothelialisation
CC of inner vascular surfaces in wound healing, e.g. treatment of full-
CC thickness wounds such as dermal ulcers, venous ulcers and diabetic
CC ulcers, burns, in surgery, in balloon angioplasty and for the in
CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF
CC and VEGF can exhibit a mitogenic profile between each factor and
CC can be used for wound healing or as inhibitors of angiogenesis for
CC e.g. preventing the growth of tumours.
CC VEGF analogues in which CYS residues are substd. are more stable.
CC See also Q10791-93; Q10796-97; Q10806-08 and Q11099.

CC Sequence 121 AA;

Query Match 89.5%; Score 77; DB 12; Length 121;
Best Local Similarity 100.0%; Pred. No. 2.7e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITQIMRIKPH 16
| | | | | | | | | | | | | | | | | |
Db 72 eesnitqimrikph 86

RESULT 5

R42607
ID R42607 standard; Protein; 121 AA.

AC R42607;

DT 28-OCT-1993 (first entry)

DE Human VEGF-121.

KW Angiogenesis; wound healing; mitogen; vascular endothelial cells;

KW Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.

OS Homo sapiens.

PN US5219739-A.

PD 15-JUN-1993.

PE 27-JUL-1989; 89US-0387545.

PR 27-JUL-1989; 39US-0387545.

PR 14-DEC-1989; 89US-0450883.

PR 27-JUL-1990; 89US-0559041.

PA (SCIO-) SCIOS NOVIA INC.

PI Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;

DR WPI; 1993-205303/25.

DR N-PSDB; Q49601.

XX Isolated DNA sequences, expression vectors and transformant cells
PT - used for large scale prodn. of vascular endothelial cell growth
PT factor, for treating wounds in which neo-vascularisation is
PT required

XX Claim 3; Fig 7; 40pp; English.

PS The sequence of Q44260 contains an open reading frame corresponding
CC to the 165 amino acid human vascular endothelial cell growth
CC factor (hVEGF-165, see R38921). Alternative splicing of the
CC sequence gives a shorter coding sequence which encodes the 121
CC amino acid hVEGF (see R42607). The full-length coding sequences can
CC be generated from PCR with human foetal vascular smooth muscle
CC poly-A+ RNA as template.

XX Sequence 121 AA;

Query Match 89.5%; Score 77; DB 14; Length 121;
Best Local Similarity 100.0%; Pred. No. 2.7e-07;

Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMQIMRIKPH 16
Db 72 eesntmqimriklph 86

RESULT 6

W09091 W09091 standard; protein; 121 AA.

AC W09091;

DT 05-MAR-1997 (first entry)

DE Human VEGF/VPF121 for treatment of vascularisation diseases.

XX VEGF; VPF; vascular endothelial cell growth factor;
KW vascular permeability factor; vaccine; vascularisation; cancer;
KW glioma; eye tumour; trachoma; psoriasis; granuloma;
KW hypertrophic scar; post-crystalline fibrosis;
KW senile disk muscular degeneration.

OS Homo sapiens.

XX JP08225462-A.

PD 03-SEP-1996.

PF 30-NOV-1995; 95JP-0312562.

PR 01-DEC-1994; 94JP-0298718.

PA (TOAG) TOA GOSEI CHEM IND LTD.

DR WPI; 1996-450932/45.

PT Vaccine for treatment of vascularisation diseases, e.g. cancer -
PT comprises peptide derived from vascular endothelial cell growth
PT factor

XX Example; Page 6-7; 7pp; Japanese.

XX A vaccine for treatment and prevention of diseases caused by
CC vascularisation comprising a cell growth factor or its fragments
CC which stimulate vascular cell proliferation is provided. The
CC vaccine can be used for treating cancers, glioma, eye tumours,
CC trachoma, psoriasis, granuloma, hypertrophic scars,
CC post-crystalline fibrosis and senile disk muscular degeneration.
CC A preferred protein for use in the vaccine is human VEGF/VPF121,
CC i.e. the present sequence.

XX Sequence 121 AA;

Query Match 89.5%; Score 77; DB 17; Length 121;
Best Local Similarity 100.0%; Pred. No. 2.7e-07;

Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMQIMRIKPH 16
Db 72 eesntmqimriklph 86

RESULT 7

W03677 W03677 standard; protein; 121 AA.

AC W03677;

DT 31-DEC-1996 (first entry)

DE Vascular permeability factor.

XX Vascular permeability factor; growth factor; overlapping peptide;
KW monoclonal antibody; hybridoma; cancer.

OS Synthetic.

XX JP08169898-A.

PD 02-JUL-1996.

PF 06-JUN-1995; 95JP-0162841.

PR 18-OCT-1994; 94JP-0278387.

PR 10-JUN-1994; 94JP-0152805.

PA (TOAG) TOA GOSEI CHEM IND LTD.

DR WPI; 1996-358508/36.

PT New peptide, useful as antigen for preparing vascular permeability
PT factor monoclonal antibody - is used in treatment agent for cancers
PT and as biochemical reagents

PS Disclosure; Page 10; 13pp; Japanese.

XX This is the amino acid sequence of the vascular permeability factor
CC (VPF), a member of the growth factor family. Several VPF types are
CC known having 121, 165, 189 or 206 amino acids. This sequence was used
CC to generate a series of overlapping peptides having 10 residues which
CC were used to raise antibodies against the VPF peptide. The two peptides
CC W03678-9 generated the greatest antibody signal against the VPF protein.
CC These clones were used to manufacture hybridomas producing monoclonal
CC antibodies which are useful for diagnosis and treatment of cancers and
CC other diseases.

XX Sequence 121 AA;

Query Match 89.5%; Score 77; DB 17; Length 121;
Best Local Similarity 100.0%; Pred. No. 2.7e-07;

Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMQIMRIKPH 16
Db 72 eesntmqimriklph 86

RESULT 8

R96043 R96043 standard; protein; 121 AA.

AC R96043;

DT 20-AUG-1996 (first entry)

DE Human vascular permeability factor.

KW Vascular permeability factor; VPF; human; monoclonal antibody; diagnosis;
KW therapy; cancer; chimera; humanised antibody.
XX
XX Homo sapiens.
XX
XX JP08053498-A.
XX
XX
XX 27-FEB-1996.
XX
XX
XX 06-JUN-1995; 95JP-0162840.
XX
XX 10-JUN-1994; 94JP-0152804.
XX
XX (TOAG) TOA GOSEI CHEM IND LTD.
XX
XX WPI: 1996-175730/18.
XX
XX
XX Monoclonal antibody reacting with human vascular permeability factor
PT - useful for treatment and diagnosis of cancer and other diseases
XX
XX
XX Disclosure; Page 9; 10pp; Japanese.
XX
XX This sequence represents the human vascular permeability factor (hVPF).
CC The monoclonal antibody of the invention (WV101) reacts with this hVPF
CC sequence. WV101 does not, however, react with a peptide composed of ten
CC successive residues of this sequence starting from an odd number from the
CC N-terminus of this sequence (e.g. residues 1-10, residues 5-14, residues
CC 47-56 etc.). The antibody can be used for diagnosis and treatment of
CC cancer and other diseases. When it is used as an anti-cancer agent, it
CC is preferably in the form of a chimeric or humanised antibody.
XX
XX Sequence 121 AA;
SQ

Query Match 89.5%; Score 77; DB 17; Length 121;
Best Local Similarity 100.0%; Pred. No. 2.7e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 2 EESNTMOIMRIKPH 16
DB 72 eesnlmgimrikph 86

RESULT 9
R93977
ID R93977 standard; protein; 121 AA.
XX
XX R93977;
XX
XX 12-JUN-1996 (first entry)
XX
XX Vascular permeability factor-121.
DE Vascular permeability factor; VPF121; monoclonal antibody;
KW anticancer.
XX
XX Homo sapiens.
XX
XX JP07330795-A.
XX
XX 19-DEC-1995.
XX
XX 07-JUN-1994; 94JP-0125569.
XX
XX 07-JUN-1994; 94JP-0125569.
XX
XX (TOAG) TOA GOSEI CHEM IND LTD.
XX
XX WPI: 1996-074895/08.
XX
XX Partial peptide(s) of VPF121 and monoclonal antibodies - useful as
PT anticancer agents
XX

PS Disclosure; Page 7; 9pp; Japanese.
XX
XX The sequence represents VPF121. The patent relates to three new
CC short peptides derived from this sequence (see R93978 - R93980) and
CC to monoclonal antibodies raised against them which are useful as
CC anticancer agents.
XX
XX
XX Sequence 121 AA;
SQ

Query Match 89.5%; Score 77; DB 17; Length 121;
Best Local Similarity 100.0%; Pred. No. 2.7e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 2 EESNTMOIMRIKPH 16
DB 72 eesnlmgimrikph 86

RESULT 10
W40597
ID W40597 standard; protein; 121 AA.
XX
XX W40597;
XX
XX 31-MAR-1998 (first entry)
XX
XX VEGF/VPF121.
DE
XX Vascular endothelial growth factor; VEGF; permeability; VPF;
KW immunotherapy; vaccine; cancer; vascularisation.
XX
XX Homo sapiens.
XX
XX JP09316000-A.
XX
XX 09-DEC-1997.
XX
XX 31-MAY-1996; 96JP-0138659.
XX
XX 31-MAY-1996; 96JP-0138659.
XX
XX (TOAG) TOA GOSEI CHEM IND LTD.
XX
XX WPI: 1998-082577/08.
XX
XX Vascularisation-controlling vaccine - contains endothelial cell
PT growth factor, used in the immunotherapy of solid tumours
XX
XX
XX Disclosure; Page 7; 9pp; Japanese.
XX
XX The patent discloses a vascularisation-controlling vaccine comprising
CC a cell growth factor which specifically promotes growth of endothelial
CC cells. The vaccine is typically used in immunotherapy to remedy diseases
CC caused by vascularisation, such as solid tumours, and to control the
CC onset and recurrence of such diseases. Typical growth factors include
CC vascular permeability factor (VPF) and vascular endothelial growth
CC factor (VEGF). The present sequence is that of human VEGF/VPF121.
XX
XX Sequence 121 AA;
SQ

Query Match 89.5%; Score 77; DB 19; Length 121;
Best Local Similarity 100.0%; Pred. No. 2.7e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 2 EESNTMOIMRIKPH 16
DB 72 eesnlmgimrikph 86

RESULT 11
Y23943

ID Y23943 standard; peptide; 121 AA.
 AC Y23943;
 DT 21-SEP-1999 (first entry)
 DE Amino acid sequence of vascular endothelial growth factor (VEGF) 121.
 KW Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.
 OS Homo sapiens.
 PN JP11178593-A.
 PD 06-JUL-1999.
 PF 24-DEC-1997; 97JP-0365972.
 PR 24-DEC-1997; 97JP-0365972.
 PA (FURE) FUIREBIO KK.
 DR WPI; 1999-437318/37.
 PT New VEGF121-specific monoclonal antibody - useful for measuring levels of VEGF121
 PS Disclosure; Page 5; 6pp; Japanese.
 CC The present sequence represents vascular endothelial growth factor (VEGF) 121. The specification describes a monoclonal antibody which is specific to VEGF 121, and a hybridoma producing this antibody. The antibody is used in a method for measuring the amount of VEGF 121 present in a sample.
 CC Sequence 121 AA;
 SQ

Query Match 89.5%; Score 77; DB 20; Length 121;
 Best Local Similarity 100.0%; Pred. No. 2.7e-07;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITMOIMIKPH 16
 |||||
 DB 72 eesntmqimikph 86

RESULT 12
 Y08278
 ID Y08278 standard; Protein; 121 AA.
 AC Y08278;
 DT 14-JUL-1999 (first entry)
 DE Human growth factor protein fragment VEGF-A121.
 KW Growth factor; human; dimer; cysteine knot; cellular inclusion body; pharmaceutical.
 OS Homo sapiens.
 PN DE19748734-A1.
 PD 06-MAY-1999.
 PF 05-NOV-1997; 97DE-1048734.
 PR 05-NOV-1997; 97DE-1048734.
 PA (GBFB) GBS BIOTECHNOLOGISCHE FORSCHUNG MBH.
 DR Erdmann H, Kaerst U, Mueller C, Rinas U, Welch H;

XX WPI; 1999-278785/24.
 DR
 XX
 PT Preparing active growth factor dimers from inclusion bodies in high yield
 PS Claim 14; Page 7; 14pp; German.
 CC This invention describes the novel preparation of biologically active dimers of recombinant human growth factors of the cysteine knot family starting from cellular inclusion bodies. Such dimers are useful in pharmaceutical compositions and the method provides yields of 31-39.7% in examples, compared with about 10% for the conventional method (see CC Biochemistry, 28 (1989) 2956). Y08278-Y08301 are human growth factor protein fragments used in the method of the invention.
 CC Sequence 121 AA;
 SQ

Query Match 89.5%; Score 77; DB 20; Length 121;
 Best Local Similarity 100.0%; Pred. No. 2.7e-07;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITMOIMIKPH 16
 |||||
 DB 72 eesntmqimikph 86

RESULT 13
 W56693
 ID W56693 standard; Protein; 145 AA.
 AC W56693;
 DT 24-JUL-1998 (first entry)
 DE Vascular endothelial growth factor-145 (VEGF145).
 KW Vascular endothelial growth factor; VEGF145; angiogenic factor; cell proliferation; cardiovascular disease; drug permeation. tumour.
 OS Homo sapiens.
 FH Key Location/Qualifiers
 FT Misc-difference 127 /note="encoded by ACG"
 FT
 W09810071-A1.
 PN
 PD 12-MAR-1998.
 PF 04-SEP-1997; 97WO-US15471.
 PR 21-JAN-1997; 97US-0784551.
 PR 06-SEP-1996; 96US-0025537.
 PA (COLL-) COLLAGEN. THERAPEUTICS.
 PA (TECR) TECHNION RES & DEV CO LTD.
 PI Keshet-E, Neufeld G, Poltorak Z, Vlodevsky I;
 DR WPI; 1998-193621/17.
 DR N-PSDB; V28396.
 PT Vascular endothelial growth factor-145 splice variant - useful as an angiogenic factor for treatment of cardiovascular disease
 PS Disclosure; Fig 3; 73pp; English.
 CC This represents a vascular endothelial growth factor-145 (VEGF145) which can be used to stimulate vascular cell proliferation. Polynucleotides encoding VEGF145 are useful for treatment of cardiovascular or vascular disease in mammals, especially humans. They are also useful for enhancing

CC drug permeation by tumours. VEGF145 can also be administered to stimulate
 CC vascular cell proliferation or to enhance endothelialization of diseased
 CC vessels (especially re-endothelialization after angioplasty) in mammals.
 CC VEGF145, which binds as weakly as VEGF165 to heparin, binds much better
 CC than VEGF165 to the extracellular matrix (ECM). However, unlike VEGF189,
 CC VEGF145 is secreted from producer cells and binds efficiently to ECM.
 CC This combination of properties render VEGF145 the only known VEGF variant
 CC that is secreted from producing cells retaining at the same time ECM
 CC binding properties. This makes VEGF145 likely to diffuse towards the
 CC target blood vessels, while some of the produced VEGF145 will be retained
 CC by ECM components along the path of diffusion. This ECM bound pool will
 CC dissociate slowly allowing a longer period of activity. Additionally, the
 CC biological activity of VEGF145 is protected against oxidative damage
 CC unlike VEGF forms such as VEGF121 thereby giving it a longer half-life.

XX Sequence 145 AA;

Query Match 89.5%; Score 77; DB 19; Length 145;
 Best Local Similarity 100.0%; Pred. No. 3.3e-07;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMQIMRIKPH 16
 |||||
 Db 72 eesntmqimrikph 86

RESULT 14
 ID Y08279
 Y08279 standard; Protein; 145 AA.

XX AC Y08279;

XX DT 14-JUL-1999 (first entry)

XX DE Human growth factor protein fragment VEGF-A145.

XX KW Growth factor; human; dimer; cysteine knot; cellular inclusion body;

XX KW Pharmaceutical.

XX OS Homo sapiens.

XX PN DE19748734-A1.

XX PD 06-MAY-1999.

XX PF 05-NOV-1997; 97DE-1048734.

XX PR 05-NOV-1997; 97DE-1048734.

XX PA (GBFB) GES BIOTECHNOLOGISCHE FORSCHUNG MBH.

XX PI Erdmann H, Kaerst U, Mueller C, Rinas U, Welch H;

XX DR WPI: 1999-278785/24.

XX PT Preparing active growth factor dimers from inclusion bodies in high

XX PT yield

XX PS Claim 14; Page 7; 14pp; German.

XX CC This invention describes the novel preparation of biologically active
 CC dimers of recombinant human growth factors of the cysteine knot family
 CC starting from cellular inclusion bodies. Such dimers are are useful in
 CC pharmaceutical compositions and the method provides yields of 31-39.7%,
 CC in examples, compared with about 10% for the conventional method (see
 CC Biochemistry. 28 (1989) 2956). Y08278-Y08301 are human growth factor
 CC protein fragments used in the method of the invention.

XX Sequence 145 AA;

Query Match 89.5%; Score 77; DB 20; Length 145;

Best Local Similarity 100.0%; Pred. No. 3.3e-07;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMQIMRIKPH 16
 |||||
 Db 72 eesntmqimrikph 86

RESULT 15
 ID Y69413
 Y69413 standard; Protein; 145 AA.

XX AC Y69413;

XX DT 03-JUL-2000 (first entry)

XX DE Amino acid sequence of vascular endothelial growth factor 145.

XX KW Human; vascular; endothelial growth factor; VEGF 145; angiogenic factor;
 KW blood vessel injury; vascular injury; microvascular angiopathy;
 KW thrombotic microangiopathy; kidney disease; hemolytic uremic syndrome;
 KW toxic shock syndrome; venom; hypercoagulable state; platelet activation;
 KW platelet aggregation; thrombosis; preclampsia; sepsis; pancreatitis;
 KW intravascular coagulation; thrombotic thrombocytopenia purpura;
 KW acute renal failure; myocardial infarction; ischemic bowel disease;
 KW stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;
 KW acute respiratory distress syndrome; pneumonia; pulmonary emboli;
 KW birth prematurity disorder; wound; allergy; hypersensitivity;
 KW autoimmune disease; organ transplant; focal glomerulosclerosis;
 KW amyloidosis.

XX OS Homo sapiens.

XX PN WO200013702-A2.

XX PD 16-MAR-2000.

XX PF 09-SEP-1999; 99WO-US20480.

XX PR 09-SEP-1998; 98US-0099694.

XX PR 26-MAR-1999; 99US-0126406.

XX PR 27-MAR-1999; 99US-0126615.

XX PA (SCIO-) SCIOS INC.

XX PI Schreiner GF, Johnson RJ;

XX DR WPI: 2000-256861/22.

XX DR N-PSDB: 299545.

XX PS Disclosure; Fig.5; 46pp; English.

XX CC The present sequence represents native human vascular endothelial growth
 CC factor (VEGF) 145. VEGF is an angiogenic factor. VEGF proteins are used
 CC for the prevention or repair of injury to blood vessels or associated
 CC nonvascular tissues (served by the blood vessels) and for the prevention
 CC and repair of vascular injury associated with microvascular angiopathy,
 CC particularly thrombotic microangiopathy. The proteins methods may also
 CC be used for the prevention and treatment of kidney diseases associated
 CC with injury to, or atrophy of, the vasculature of the glomerulus and
 CC interstitium. Conditions which may be treated include hemolytic uremic
 CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,
 CC hypercoagulable states, platelet activation or aggregation, thrombosis,
 CC preclampsia, thrombotic thrombocytopenia purpura, disseminated
 CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,
 CC myocardial infarction, ischemic bowel disease, transient ischemic
 CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung
 CC endothelium injury, acute respiratory distress syndrome, toxic alveolar
 CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,

CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ
 CC transplants, local glomerulosclerosis, and amyloidosis.
 XX
 SQ Sequence 145 AA;

Query Match 89.5%; Score 77; DB 21; Length 145;
 Best Local Similarity 100.0%; Pred. No. 3.3e-07;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 2 EESNITMQIMRIKPH 16
 |||||||||
 Db 72 eesnltmqimrikph 86

Search completed: November 9, 2000, 15:30:41
 Job time: 106 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:33:02 ; Search time 63.67 Seconds
(without alignments)
4.212 Million cell updates/sec

Title: US-09-266-543-9
Perfect score: 86
Sequence: 1 CEESNITWQIMRIKPH 16

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 16761186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database : Issued_Patents_AA.*
1: /cgn2_6/ptodata/2/1aa/5A.COMB.pep.*
2: /cgn2_6/ptodata/2/1aa/5B.COMB.pep.*
3: /cgn2_6/ptodata/2/1aa/6.COMB.pep.*
4: /cgn2_6/ptodata/2/1aa/PCUS.COMB.pep.*
5: /cgn2_6/ptodata/2/1aa/Backfile1.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match length	DB ID	Description
1	77	89.5	109 3 US-08-691-794-3	Sequence 3, Appl1
2	77	89.5	121 5 5194596-19	Patent No. 5194596
3	77	89.5	121 5 5219739-20	Patent No. 5219739
4	77	89.5	145 3 US-08-784-551C-2	Sequence 2, Appl1
5	77	89.5	147 3 US-08-807-992B-1	Sequence 1, Appl1
6	77	89.5	165 5 5194596-18	Patent No. 5194596
7	77	89.5	5219739-19	Patent No. 5219739
8	77	89.5	191 3 US-08-567-200A-2	Sequence 2, Appl1
9	77	89.5	191 3 US-08-807-992B-2	Sequence 2, Appl1
10	77	89.5	191 3 US-08-691-794-2	Sequence 2, Appl1
11	77	89.5	191 5 5332671-4	Patent No. 5332671
12	77	89.5	214 5 5240848-11	Patent No. 5240848
13	77	89.5	215 5 US-08-807-992B-3	Sequence 3, Appl1
14	77	89.5	215 5 5240848-7	Patent No. 5240848
15	77	89.5	231 4 PCT-US96-09001-10	Sequence 10, Appl1
16	77	89.5	232 4 US-08-999-811-7	Sequence 7, Appl1
17	77	89.5	232 4 US-08-824-996-9	Sequence 9, Appl1
18	77	89.5	232 3 US-08-807-992B-4	Sequence 4, Appl1
19	77	89.5	232 3 US-09-042-105-7	Sequence 15, Appl1
20	77	89.5	189 1 US-08-469-427A-15	Sequence 17, Appl1
21	77	89.5	190 2 US-08-569-063C-20	Sequence 20, Appl1
22	77	89.5	120 5 5194596-9	Patent No. 5194596
23	77	89.5	120 5 5219739-9	Patent No. 5219739
24	77	89.5	164 5 5194596-17	Patent No. 5194596
25	77	89.5	164 5 5219739-17	Patent No. 5219739
26	77	89.5	164 5 5219739-18	Patent No. 5219739
27	77	89.5	190 5 5332671-3	Patent No. 5332671
28	77	89.5	215 5 5219739-22	Patent No. 5219739

29	63	73.3	12 3 US-08-742-243-53	Sequence 53, Appl1
30	62	72.1	19 3 US-08-807-992B-24	Sequence 24, Appl1
31	57	66.3	12 3 US-08-742-243-52	Sequence 52, Appl1
32	53	61.6	12 3 US-08-742-243-51	Sequence 51, Appl1
33	53	61.6	12 3 US-08-742-243-54	Sequence 54, Appl1
34	44	51.2	1321 2 US-08-317-310A-64	Sequence 64, Appl1
35	43	50.0	12 3 US-08-742-243-50	Sequence 50, Appl1
36	43	50.0	12 3 US-08-742-243-55	Sequence 55, Appl1
37	41	47.7	149 1 US-08-469-427A-14	Sequence 14, Appl1
38	41	47.7	149 2 US-08-039-297B-2	Sequence 2, Appl1
39	41	47.7	149 2 US-08-569-063C-21	Sequence 21, Appl1
40	41	47.7	170 2 US-08-039-297B-8	Sequence 8, Appl1
41	39	45.3	12 3 US-08-742-243-49	Sequence 49, Appl1
42	36	41.9	245 2 US-08-897-340-35	Sequence 35, Appl1
43	36	41.9	245 2 US-08-897-340-36	Sequence 36, Appl1
44	36	41.9	419 3 US-09-100-391-4	Sequence 4, Appl1
45	36	41.9	582 3 US-09-100-391-10	Sequence 10, Appl1

ALIGNMENTS

```

RESULT 1
US-08-691-794-3
; Sequence 3, Application US/08691794
; Patent No. 6057428
GENERAL INFORMATION:
APPLICANT: Keyt, Bruce A.
APPLICANT: Nguyen, Francis H.
APPLICANT: Ferrara, Napoleone
APPLICANT: Cunningham, Brian C.
APPLICANT: Wells, James A.
TITLE OF INVENTION: Variants of Vascular Endothelial Cell
TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their
NUMBER OF SEQUENCES: 45
CORRESPONDENCE ADDRESS:
ADDRESSER: Flehr, Hombach, Test, Aldriton & Herbert
STREET: Four Embarcadero Center, Suite 3400
CITY: San Francisco
STATE: California
COUNTRY: United States
ZIP: 94111-4187
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/691,794
FILING DATE: 02-AUG-1996
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/002,827
FILING DATE: 25-AUG-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/567,200
FILING DATE: 05-DEC-1995
ATTORNEY/AGENT INFORMATION:
NAME: Dregger, Walter H.
REGISTRATION NUMBER: 24,190
REFERENCE/DOCKET NUMBER: A-63758/WMD
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 781-1989
TELEFAX: (415) 398-3249
TELEX: 910 27299
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 109 amino acids
TYPE: amino acid
STRANDEDNESS: unknown
TOPOLOGY: unknown

```

Thu Nov 9 15:50:05 200

MOLECULE TYPE Protein
US-08-691-794-3

us-09-266-543-9.rai

Query Match
Best Local Similarity 89.5%; Score 77; DB 3; Length 109;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 2 EESNTMOIMRIKPH 16
Db 72 EESNTMOIMRIKPH 86

RESULT 2
5194596-19
Patent No. 5194596
; C. MITCHELL, RICHARD L.
; TITCHELL, RICHARD L.
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; PILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 19
; LENGTH: 121

Query Match
Best Local Similarity 89.5%; Score 77; DB 5; Length 121;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 2 EESNTMOIMRIKPH 16
Db 72 EESNTMOIMRIKPH 86

RESULT 3
5219739-20
Patent No. 5219739
; JOHN C. MITCHELL, RICHARD L.
; HVEGF 121 AND METHOD FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, HVEGF120 AND HVEGF121
; CURRENT APPLICATION DATA:
; PILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; FILING DATE: 14-DEC-1989
; SEQ ID NO: 19
; LENGTH: 121

Query Match
Best Local Similarity 89.5%; Score 77; DB 5; Length 121;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 2 EESNTMOIMRIKPH 16
Db 72 EESNTMOIMRIKPH 86

US-08-784-551C-2
Patent No. 6013780
GENERAL INFORMATION:
APPLICANT: Gera Neufeld
APPLICANT: Eli Keshet
APPLICANT: Israel Vitec
TITLE OF INVENTION: ANGIOGENIC FACTOR AND USE THEREOF
NUMBER OF SEQUENCES: 18
CORRESPONDENCE ADDRESS:
STREET: 900 17th Street, N.W.
CITY: Washington, D.C.
COUNTRY: U.S.A.
COMPT: 20006

METER READABLE FORM:
MEDIUM TYPE: 3.5" Diskette, 1.44 MB
COMPUTER: IBM Storage
OPERATING SYSTEM: IBM P.C. DOS 5.0
CURRENT APPLICATION DATA:
FILING DATE: January 21, 1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 514
ATTORNEY/AGENT INFORMATION:
NAME: Cohen, Herbert
REGISTRATION NUMBER: 25,109
TELEPHONE/DOCKET NUMBER: 0274, 005/P003
TELEFAX: (202) 463-7700
TELEX: (202) 463-6915
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 145 amino acids
TYPE: amino acid
STRANDEDNESS: single
US-08-784-551C-2 linear

Query Match
Best Local Similarity 89.5%; Score 77; DB 3; Length 145;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Qy 2 EESNTMOIMRIKPH 16
Db 72 EESNTMOIMRIKPH 86

RESULT 5
US-08-807-992B-1
Sequence 1, Application US/08807992B
Patent No. 6022541
GENERAL INFORMATION:
APPLICANT: Sender
APPLICANT: Donald R
TITLE OF INVENTION: Immunological preparation for concurrent
TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS:
STREET: David Frasher, Esq
P.O. Box 5387

CITY: Magnolia
STATE: Massachusetts
COUNTRY: USA
ZIP: 01930
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 Inch, 1.40 Mb storage
COMPUTER: IBM PS/1
OPERATING SYSTEM: MS DOS
SOFTWARE: WordPerfect version 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/807,992B
FILING DATE: March 3, 1997
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: David Prashker, Esq.
REGISTRATION NUMBER: 29,693
REFERENCE/DOCKET NUMBER: BIS-033
TELECOMMUNICATION INFORMATION:
TELEPHONE: (978) 525-3794
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 147 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-807-992B-1

Query Match 89.5%; Score 77; DB 3; Length 147;
Best Local Similarity 100.0%; Pred. No. 8.9e-08;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
|||||

DB 98 EESNITMOIMRIKPH 112

RESULT 6
5194596-18
PATENT NO. 5194596
APPLICANT: FISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
GROWTH FACTOR
NUMBER OF SEQUENCES: 32
CURRENT APPLICATION DATA:
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
FILING DATE: 14-DEC-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 18
LENGTH: 165
5194596-18

Query Match 89.5%; Score 77; DB 5; Length 165;
Best Local Similarity 100.0%; Pred. No. 1e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
|||||

DB 72 EESNITMOIMRIKPH 86

RESULT 7
5219739-19
PATENT NO. 5219739
APPLICANT: FISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
JOHN C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND
HVGEF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND HVGEF121

NUMBER OF SEQUENCES: 40
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/559,041
FILING DATE: 27-JUL-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 450,883
FILING DATE: 14-DEC-1989
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 19
LENGTH: 165
5219739-19

Query Match 89.5%; Score 77; DB 5; Length 165;
Best Local Similarity 100.0%; Pred. No. 1e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
|||||

DB 72 EESNITMOIMRIKPH 86

RESULT 8
US-08-567-200A-2
SEQUENCE 2, Application US/08567200A
PATENT NO. 6020473
GENERAL INFORMATION:
APPLICANT: Key!, Bruce A.
APPLICANT: Nguyen, Francis H.
APPLICANT: Ferrara, Napoleone
TITLE OF INVENTION: Variants of Vascular Endothelial Cell
Growth Factor, Their Uses, and Processes for their
NUMBER OF SEQUENCES: 42
TITLE OF INVENTION: Production
CORRESPONDENCE ADDRESS:
ADDRESSEE: Flehr, Hohbach, Test, Albritton & Herbert
STREET: Four Embarcadero Center, Suite 3400
CITY: San Francisco
STATE: California
COUNTRY: United States
ZIP: 94111-4187
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/567,200A
FILING DATE: 05-DEC-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Dreger, Walter H.
REGISTRATION NUMBER: 24,190
REFERENCE/DOCKET NUMBER: A-62326-1/RHD
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 781-1989
TELEFAX: (415) 398-3249
TELETYPE: 910 277299
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 191 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-567-200A-2

Query Match 89.5%; Score 77; DB 3; Length 191;
Best Local Similarity 100.0%; Pred. No. 1.2e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16

Db 98 EESNITMOIMRIKPH 112

RESULT 9

US-08-807-992B-2

Sequence 2, Application US/08807992B

Patent No. 6022541

GENERAL INFORMATION:

APPLICANT: Senger, Donald R

APPLICANT: Dvorak, Harold F

TITLE OF INVENTION: Immunological preparation for concurrent

TITLE OF INVENTION: specific binding to spatially exposed regions of vascular

TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood

NUMBER OF SEQUENCES: 31

CORRESPONDENCE ADDRESS:

ADDRESSEE: David Prashker, Esq.

STREET: P.O. Box 5387

CITY: Magnolia

STATE: Massachusetts

COUNTRY: USA

ZIP: 01930

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage

OPERATING SYSTEM: MS DOS

SOFTWARE: WordPerfect version 5.1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/807,992B

FILING DATE: March 3, 1997

CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:

NAME: David Prashker, Esq.

REGISTRATION NUMBER: 29,693

REFERENCE/DOCKET NUMBER: BIS-033

TELECOMMUNICATION INFORMATION:

TELEPHONE: (978) 525-3794

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:

LENGTH: 191 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-807-992B-2

Query Match
Best Local Similarity 89.5%; Score 77; DB 3; Length 191;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16

Db 98 EESNITMOIMRIKPH 112

RESULT 10

US-08-691-794-2

Sequence 2, Application US/08691794

Patent No. 6057428

GENERAL INFORMATION:

APPLICANT: Keyt, Bruce A.

APPLICANT: Nguyen, Francis H.

APPLICANT: Ferrara, Napoleone

APPLICANT: Cunningham, Brian C.

APPLICANT: Wells, James A.

APPLICANT: Li, Bing

TITLE OF INVENTION: Variants of Vascular Endothelial Cell

TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their

NUMBER OF SEQUENCES: 45

CORRESPONDENCE ADDRESS:

ADDRESSEE: Flehr, Hohnach, Test, Albritton & Herbert

STREET: Four Embarcadero Center, Suite 3400

CITY: San Francisco

STATE: California

COUNTRY: United States

ZIP: 94111-4187

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patientin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/691,794

FILING DATE: 02-AUG-1996

CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 60/002,827

FILING DATE: 25-AUG-1995

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/567,200

FILING DATE: 05-DEC-1995

ATTORNEY/AGENT INFORMATION:

NAME: Dregler, Walter H.

REGISTRATION NUMBER: 24,190

REFERENCE/DOCKET NUMBER: A-63758/WHD

TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 781-1989

TELEFAX: 910 277299

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:

LENGTH: 191 amino acids

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-691-794-2

Query Match
Best Local Similarity 89.5%; Score 77; DB 3; Length 191;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16

Db 98 EESNITMOIMRIKPH 112

RESULT 11

5332671-4

Patent No. 5332671

APPLICANT: FERRARA, NAPOLEONE;LEUNG, DAVID W.H.

TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL

GROWTH FACTOR AND DNA ENCODING SAME

NUMBER OF SEQUENCES: 15

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/389,722

FILING DATE: 04-AUG-1989

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 369,424

FILING DATE: 21-JUN-1989

APPLICATION NUMBER: 351,117

FILING DATE: 12-MAY-1989

SEQ ID NO:4

LENGTH: 191

5332671-4

Query Match
Best Local Similarity 89.5%; Score 77; DB 5; Length 191;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 EESNITMOIMRIKPH 16

Db 98 EESNITMOIMRIKPH 112

RESULT 12
5240848-11
PATENT NO. 5240848
APPLICANT: KECK, PAMELA J.; CONNOLLY, DANIEL T.; FEDER, JOSEPH
TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR
PERMEABILITY FACTOR HAVING 189 AMINO ACIDS
NUMBER OF SEQUENCES: 11
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/337,037
FILING DATE: 10-JUL-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 274,061
FILING DATE: 21-NOV-1988
SEQ ID NO: 11
LENGTH: 214
5240848-11

Query Match 89.5%; Score 77; DB 5; Length 214;
Best Local Similarity 100.0%; Pred. No. 1.4e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMOIMRIKPH 16
Db 98 EESNTMOIMRIKPH 112

RESULT 13
US-08-807-992B-3
Sequence 3, Application US/08807992B
Patent No. 6022541
GENERAL INFORMATION:
APPLICANT: Senger, Donald R
APPLICANT: Dvorak, Harold F
TITLE OF INVENTION: Immunological preparation for concurrent
TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
TITLE OF INVENTION: vessel
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS:
ADDRESSEE: David Prashker, Esq.
STREET: P.O. Box 5387
CITY: Magnolia
STATE: Massachusetts
COUNTRY: USA
ZIP: 01930
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
COMPUTER: IBM PS/1
OPERATING SYSTEM: MS DOS
SOFTWARE: WordPerfect version 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/807,992B
FILING DATE: March 3, 1997
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: David Prashker, Esq.
REGISTRATION NUMBER: 29,693
REFERENCE/DOCKET NUMBER: BIS-033
TELECOMMUNICATION INFORMATION:
TELEPHONE: (978) 525-3794
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 215 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-807-992B-3

Query Match 89.5%; Score 77; DB 3; Length 215;

Best Local Similarity 100.0%; Pred. No. 1.4e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMOIMRIKPH 16
Db 98 EESNTMOIMRIKPH 112

RESULT 14
5240848-7
PATENT NO. 5240848
APPLICANT: KECK, PAMELA J.; CONNOLLY, DANIEL T.; FEDER, JOSEPH
TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR
PERMEABILITY FACTOR HAVING 189 AMINO ACIDS
NUMBER OF SEQUENCES: 11
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/337,037
FILING DATE: 10-JUL-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 274,061
FILING DATE: 21-NOV-1988
SEQ ID NO: 7
LENGTH: 215
5240848-7

Query Match 89.5%; Score 77; DB 5; Length 215;
Best Local Similarity 100.0%; Pred. No. 1.4e-07;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNTMOIMRIKPH 16
Db 98 EESNTMOIMRIKPH 112

RESULT 15
PCT-US96-09001-10
Sequence 10, Application PC/TUS9609001
GENERAL INFORMATION:
APPLICANT: HU, ET AL.
TITLE OF INVENTION: Human Vascular Endothelial Growth Factor 2
NUMBER OF SEQUENCES: 10
CORRESPONDENCE ADDRESS:
ADDRESSEE: CARELLA, BYRNE, BAIN, GUILFILLAN,
STREET: 6 BECKER FARM ROAD
CITY: ROSELAND
STATE: NEW JERSEY
COUNTRY: USA
ZIP: 07068
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 INCH DISKETTE
COMPUTER: IBM PS/2
OPERATING SYSTEM: MS-DOS
SOFTWARE: WORD PERFECT 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US96/09001
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/465,968
FILING DATE: 6 JUN 95
APPLICATION NUMBER: 08/207,550
FILING DATE: 8 MAR 1994
ATTORNEY/AGENT INFORMATION:
NAME: FERRARO, GREGORY D.
REGISTRATION NUMBER: 36,134
REFERENCE/DOCKET NUMBER: 325800-288
TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-994-1700
TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:

LENGTH: 231 AMINO ACIDS
 TYPE: AMINO ACID
 STRANDEDNESS:
 TOPOLOGY: LINEAR
 MOLECULE TYPE: PROTEIN
 PCT-US96-09001-10

Query Match 89.58; Score 77; DB 4; Length 231;
 Best Local Similarity 100.0%; Pred. No. 1.5e-07;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 2 EESNITMQIMRIKPH 16
 ||||||||||||
 Db 97 EESNITMQIMRIKPH 111

Search completed: November 9, 2000, 15:33:02
 Job time: 243 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:40 ; Search time 94.87 Seconds

(without alignments)
4.686 Million cell updates/sec

Title: US-09-266-543-8

Perfect score: 71

Sequence: 1 CMDEGLSESYPTFE 13

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues

Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :
1: A_Geneseq_36.*
2: /SIDSL/gcgdata/geneseq/geneseq/AA1980.DAT.*
3: /SIDSL/gcgdata/geneseq/geneseq/AA1981.DAT.*
4: /SIDSL/gcgdata/geneseq/geneseq/AA1982.DAT.*
5: /SIDSL/gcgdata/geneseq/geneseq/AA1983.DAT.*
6: /SIDSL/gcgdata/geneseq/geneseq/AA1984.DAT.*
7: /SIDSL/gcgdata/geneseq/geneseq/AA1985.DAT.*
8: /SIDSL/gcgdata/geneseq/geneseq/AA1986.DAT.*
9: /SIDSL/gcgdata/geneseq/geneseq/AA1987.DAT.*
10: /SIDSL/gcgdata/geneseq/geneseq/AA1988.DAT.*
11: /SIDSL/gcgdata/geneseq/geneseq/AA1989.DAT.*
12: /SIDSL/gcgdata/geneseq/geneseq/AA1990.DAT.*
13: /SIDSL/gcgdata/geneseq/geneseq/AA1991.DAT.*
14: /SIDSL/gcgdata/geneseq/geneseq/AA1992.DAT.*
15: /SIDSL/gcgdata/geneseq/geneseq/AA1993.DAT.*
16: /SIDSL/gcgdata/geneseq/geneseq/AA1994.DAT.*
17: /SIDSL/gcgdata/geneseq/geneseq/AA1995.DAT.*
18: /SIDSL/gcgdata/geneseq/geneseq/AA1996.DAT.*
19: /SIDSL/gcgdata/geneseq/geneseq/AA1997.DAT.*
20: /SIDSL/gcgdata/geneseq/geneseq/AA1998.DAT.*
21: /SIDSL/gcgdata/geneseq/geneseq/AA1999.DAT.*
22: /SIDSL/gcgdata/geneseq/geneseq/AA2000.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	66	93.0	65	17	R94035
2	66	93.0	66	14	R42609
3	66	93.0	110	21	Y69417
4	66	93.0	110	21	Y83038
5	66	93.0	121	12	R11385
6	66	93.0	121	14	R42607
7	66	93.0	121	17	W09091
8	66	93.0	121	17	W03677
9	66	93.0	121	17	R96043
10	66	93.0	121	17	R93977
11	66	93.0	121	19	W40597
12	66	93.0	121	20	Y23943

13	66	93.0	121	20	Y08278
14	66	93.0	145	19	W56693
15	66	93.0	145	20	Y08279
16	66	93.0	145	21	Y69413
17	66	93.0	145	21	Y83034
18	66	93.0	147	16	R91075
19	66	93.0	147	17	R94001
20	66	93.0	147	19	W62524
21	66	93.0	147	20	Y33437
22	66	93.0	147	20	Y07724
23	66	93.0	147	21	Y90402
24	66	93.0	147	21	Y69412
25	66	93.0	147	21	Y83033
26	66	93.0	148	17	R94031
27	66	93.0	148	17	R94032
28	66	93.0	148	17	R94033
29	66	93.0	148	17	R94034
30	66	93.0	148	17	R94035
31	66	93.0	148	17	R94036
32	66	93.0	148	17	R94037
33	66	93.0	148	17	R94038
34	66	93.0	148	17	R94039
35	66	93.0	148	17	R94040
36	66	93.0	148	17	R94041
37	66	93.0	148	17	R94042
38	66	93.0	148	17	R94043
39	66	93.0	148	17	R94044
40	66	93.0	148	17	R94045
41	66	93.0	148	17	R94046
42	66	93.0	148	17	R94047
43	66	93.0	148	17	R94048
44	66	93.0	148	17	R94049
45	66	93.0	148	17	R94050

ALIGNMENTS

RESULT 1	
R94035	
ID	R94035 standard; Protein; 65 AA.
XX	
AC	R94035;
DF	10-OCT-1996 (first entry)
XX	
DE	VEGF exon III.
XX	
KW	Vascular endothelial growth factor; VEGF; human; conjugate; tumour; iris; proliferation inhibition; VEGF-mediated pathophysiological condition;
KW	dermatological disorder; VEGF receptor; vascular proliferation; retina;
KW	ophthalmic disorder; hyperproliferating blood vessel; therapy; psoriasis;
KW	conjunctiva; vitreous humour; rheumatoid arthritis; skin cancer;
KW	varicose veins; gene therapy.
XX	
OS	Homo sapiens.
XX	
PN	WO9606641-A1.
XX	
PD	07-MAR-1996.
XX	
PF	29-AUG-1995; 35MO-US10973.
XX	
PR	16-MAY-1995; 35US-0441979.
XX	
PR	29-AUG-1994; 34US-0297961.
XX	
PA	(PR12-) PRISM PHARM INC.
XX	
PI	Fleutbaaij GA, Freund E, Houston LL, Nova MP, Sosnowski BA;
PI	Victor KD;
XX	
DR	WPI: 1996-160151/16.
DR	N-PSDB: T17743.

Human growth facto
Vascular endotheli
Human growth facto
Amino acid sequenc
Human vascular end
Human vascular end
VEGF121. Homo sap
Amino acid sequenc
Parapox virus VEGF
Human VEGF protein
VEGF encoded by cl
Amino acid sequenc
Human vascular end
VEGF121 Cys+2. Ho
VEGF121 Cys+2. Ho
Amino acid sequenc
Human vascular end
Human VEGF-165. H
Vascular endotheli
Vascular endotheli
Vascular endotheli
Human growth facto
Human growth facto
Parapox virus VEGF
Human vascular end
Vascular endotheli
VEGF165. Homo sap

XX Vascular endothelial cell growth factor (VEGF) conjugates - having
PT VEGF linked to targeted agent, used for inhibiting proliferation of
PT cells, e.g. for gene therapy
XX

PS Disclosure; Page 119; 193pp; English.

CC R94033-R94038, R94041, R94042 and W00582 represent vascular endothelial
CC growth factors (VEGF) exons. This sequence represents exon III. These
CC sequences were used in VEGF conjugates of the invention. In the
CC conjugates, VEGF (or fragments of it) are linked to a targeted agent
CC (this can be via a linker sequence), so that the conjugate binds to a
CC VEGF receptor. Cys-modified forms of VEGF are particularly suitable for
CC chemical conjugation to linkers and targeted agents. The conjugates are
CC used for inhibiting proliferation of cells bearing VEGF receptors. They
CC can be used for treating a VEGF-mediated pathophysiological condition,
CC including dermatological disorders with underlying vascular
CC proliferation, solid tumours or an ophthalmic disorder of
CC hyperproliferating blood vessels of the retina, iris, conjunctiva or
CC vitreous humour. The conjugates can also be used for treating psoriasis,
CC rheumatoid arthritis, skin cancers and other tumours, or varicose veins.
CC They are also suitable for use in gene therapy.
XX

SO Sequence 65 AA;

Query Match

Best Local Similarity 93.0%; Score 66; DB 17; Length 65;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSEVPTEE 13
Db 47 cndeglecypsee 59
||||| |||||

RESULT 2

ID R42609 standard; Protein; 66 AA.
XX R42609;

XX 28-OCT-1993 (first entry)

DE Encoded by human VEGF-165 exon III.

XX Angiogenesis; wound healing; mitogen; vascular endothelial cells;
KW Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121;
XX alternative RNA splicing.

XX Homo sapiens.

PN US5219739-A.

PD 15-JUN-1993.

XX 27-JUL-1989; 89US-0387545.

XX 27-JUL-1989; 89US-0387545.

PR 14-DEC-1989; 89US-0450883.

PR 27-JUL-1990; 90US-0559041.

XX (SCIO-) SCIOS NOVA INC.

PI Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;

DR WPI: 1993-205302/25.

XX N-PSDB; Q49605.

XX Isolated DNA sequences, expression vectors and transformant cells

PT - used for large scale prodn. of vascular endothelial cell growth

PT factor, for treating wounds in which neo-vascularisation is

XX required

PS Claim 8; Fig 8; 40pp; English.

XX The sequences of the 8 possible exons encoding human vascular
CC endothelial cell growth factor, together with contiguous splice
CC junctions, were obtained from overlapping genomic inserts. A method
CC for producing VEGF is claimed comprising culturing mammalian cells
CC transformed with an expression vector containing exons I-V and
CC VIII. See Q44261 for exon I and Q49604-Q49610 for exons II-VIII.
XX

SO Sequence 66 AA;

Query Match

Best Local Similarity 93.0%; Score 66; DB 14; Length 66;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSEVPTEE 13
Db 48 cndeglecypsee 60
||||| |||||

RESULT 3

ID Y69417 standard; Protein; 110 AA.

XX Y69417;

DT 03-JUL-2000 (first entry)

DE Amino acid sequence of vascular endothelial growth factor 110.

XX Human; vascular endothelial growth factor; VEGF 110; angiogenic factor;
KW blood vessel injury; vascular injury; microvascular angiodystrophy;
KW thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;
KW toxic shock syndrome; venom; hypercoagulable state; platelet activation;
KW intravascular aggregation; thrombosis; preclampsia; sepsis; pancreatitis;
KW acute renal failure; myocardial infarction; ischemic bowel disease;
KW stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;
KW acute respiratory distress syndrome; pneumonia; pulmonary injury;
KW birth prematurity disorder; wound; allergy; hypersensitivity;
KW autoimmune disease; organ transplant; focal glomerulosclerosis;
XX amyloidosis.

OS Homo sapiens.

XX WO200013702-A2.

PN 16-MAR-2000.

PD 09-SEP-1999; 99WO-US20480.

XX 09-SEP-1999; 98US-009694.

PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.

XX (SCIO-) SCIOS INC.

PI Schreiner GF, Johnson RJ;

DR WPI: 2000-256861/22.

XX Novel methods and compositions for the prevention and treatment of

PT microvascular angiodystrophies by administration of angiogenic factors such

PT as vascular endothelial growth factor (VEGF)

XX Disclosure; Fig 12; 46pp; English.

XX The present sequence represents native human vascular endothelial growth

CC factor (VEGF) 110. VEGF is an angiogenic factor. VEGF proteins are used

CC for the prevention or repair of injury to blood vessels or associated

CC nonvascular tissues (served by the blood vessels) and for the prevention

and repair of vascular injury associated with microvascular angiodystrophy,

CC particularly thrombotic microangiopathy. The proteins methods may also
CC be used for the prevention and treatment of kidney diseases associated
CC with injury to, or atrophy of, the vasculature of the glomerulus and
CC interstitium. Conditions which may be treated include haemolytic uremic
CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,
CC hypercoagulable states, platelet activation or aggregation, thrombosis,
CC intravascular thrombotic thrombocytopenia purpura, disseminated
CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,
CC myocardial infarction, ischemic bowel disease, transient ischemic
CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung
CC endothelium injury, acute respiratory distress syndrome, toxic alveolar
CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,
CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ
CC transplants, focal glomerulosclerosis, and amyloidosis.

SQ Sequence 110 AA:

Query Match 93.0%; Score 66; DB 21; Length 110;
Best Local Similarity 92.3%; Pred. No. 0.00021;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESPTEE 13
Db 61 cndeglecyp tee 73

RESULT 4
Y83038 standard; Protein; 110 AA.
Y83038;

DT 04-JUL-2000 (first entry)
XX Human vascular endothelial growth factor (hVEGF110).
DE

KW Vascular endothelial growth factor; human; angiogenesis; VEGF;
KW capillary formation; hypertension; treatment; kidney; CNS; stroke;
KW meningitis; central nervous system; tumour; infection; bone growth;
KW hypoxia; hypercapnia; fibrosis; inflammatory bowel disease;
KW diarrhoea; allografts; cardiac valve.

OS Homo sapiens.

PN WO200013703-A2.

PD 16-MAR-2000.

PF 09-SEP-1999; 99WO-US20481.

PR 09-SEP-1998; 9805-0099694.

PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.

PA (SCIO-) SCIOS INC.

PI Schreiner GF, Johnson RJ;

DR MPI; 2000-256862/22.

PT Novel methods for treating hypertension by administering a factor which
XX increases angiogenesis and/or vascular permeability

PS Disclosure; Figure 11; 51pp; English.

CC Administering vascular endothelial growth factor (VEGF) can be used
CC for treating hypertension (especially salt-dependent hypertension)

CC Administration of VEGF promotes angiogenesis and/or vascular or
CC capillary permeability. The method is also useful in treating

CC disorders related to abnormal transport of solutes across endothelial
CC cells. Such disorders include the treatment or prevention of kidney
CC disease associated with impaired filtration or excretion of solutes;

CC the treatment or prevention of diseases of the central nervous system
CC associated with alterations in cerebrospinal fluid, e.g. stroke,
CC meningitis, tumour, infections, and bone growth disorders; treatment
CC or prevention of hypoxia or hypercapnia or fibrosis arising from
CC accumulation of fluid secretions in the lungs, e.g. acute respiratory
CC distress syndrome, toxic alveolar injury, pneumonia, infections,
CC surgical intervention, cystic fibrosis; treatment or prevention of
CC pulmonary dysfunction arising from injury to the pulmonary
CC endothelium, including disorders arising from premature birth, and
CC pulmonary hypertension; treatment or prevention of disease arising
CC from disordered transport of fluid and solutes across the intestinal
CC epithelium, e.g. inflammatory bowel disease, diarrhoea; treatment or
CC prevention of ascites accumulation in the peritoneum; enhancement of
CC efficacy of solute flux; preservation or enhancement of function of
CC organ allografts; and treatment of cardiac valve disease. This
CC sequence is the native human vascular endothelial growth
CC factor hVEGF110. The activity of VEGF is mediated by interaction
CC with specific receptors on target tissues, most notably the vascular
CC endothelium. VEGF exists as five different length monomer chains due
CC to alternative splicing of the VEGF RNA transcript.

SQ Sequence 110 AA:

Query Match 93.0%; Score 66; DB 21; Length 110;
Best Local Similarity 92.3%; Pred. No. 0.00021;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESPTEE 13
Db 61 cndeglecyp tee 73

RESULT 5
R11385
ID R11385 standard; Protein; 121 AA.

AC R11385;

DT 08-MAY-1991 (first entry)

DE Human vascular endothelial cell growth factor 121.

OS Homo sapiens.

PN WO9102058-A.

PD 21-FEB-1991.

PF 27-JUL-1990; 90WO-US04227.

PR 14-DEC-1989; 89US-0450883.

PR 27-JUL-1989; 89US-0387545.

PA (CALB-) CALIF BIOTECH INC.

PI Fischer ER, Abthamam, Fiddes JC, Mitchell RL;

DR MPI; 1991-073534/10.

DR N-PDB; Q11099.

PT DNA encoding vascular endothelial cell growth factor - used for
XX producing the factor for angiogenesis and re-endothelialisation
XX in wound healing

PS Disclosure; Fig 7(1-2); 94pp; English.

CC The two forms of VEGF (Q10797 and Q10917) which arise through
CC different message splicing, have different properties. In partic.

CC hVEGF121 does not bind to heparin leaving more of the protein free to

CC bind to VEGF receptor and increase the half-life and distribution of
CC the protein in circulation, whereas hVEGF165 binds heparin strongly.
CC The product can be used for angiogenesis and re-endothelialisation
CC of inner vascular surfaces in wound healing, e.g. treatment of full-
CC thickness wounds such as dermal ulcers, venous ulcers and diabetic
CC ulcers, burns, in surgery, in balloon angioplasty and for the in
CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF
CC and VEGF can exhibit a mitogenic profile between each factor and
CC can be used for wound healing or as inhibitors of angiogenesis for
CC e.g. preventing the growth of tumours.
CC VEGF analogues in which CYS residues are substd. are more stable.
CC See also Q10791-93; Q10796-97; Q10806-08 and Q11099.
XX
SQ Sequence 121 AA;

Query Match 93.0%; Score 66; DB 12; Length 121;
Best Local Similarity 92.3%; Pred. No. 0.00024;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
OY 1 CNDEGLSEVPTTE 13
|||||
Db 61 cndeglecypsee 73

RESULT 6

R42607 ID R42607 standard; Protein: 121 AA.

AC R42607;

DT 28-OCT-1993 (first entry)

DE Human VEGF-121.

KW Angiogenesis; wound healing; mitogen; vascular endothelial cells;
KW Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.

XX Homo sapiens.

FH Key Location/Qualifiers

FT Misc-difference 7

FT /note= "Inserted amino acid relative to hVEGF"

FT Misc-difference 115

FT /note= "Lys 115 of hVEGF-121 is replaced by 44
amino acids encoded by an alternatively
spliced exon in hVEGF-165 (see R38921)."

XX US5219739-A.

XX 15-JUN-1993.

PF 27-JUL-1989; 89US-0387545.

PR 27-JUL-1989; 89US-0387545.

PR 14-DEC-1989; 89US-0450883.

PR 27-JUL-1990; 90US-0559041.

XX (SCIO-) SCIOS NOVA INC.

PI Abraham JA, Fiddes JC, Mitchell RL, Tischler EG;

XX WPI; 1993-205302/25.

DR N-PSDB; Q49601.

XX Isolated DNA sequences, expression vectors and transformant cells
XX - used for large scale prodn. of vascular endothelial cell growth
XX factor, for treating wounds in which neo-vascularisation is
XX required

XX Claim 3; Fig 7; 40pp; English.

XX The sequence of Q44260 contains an open reading frame corresponding

CC to the 165 amino acid human vascular endothelial cell growth
CC factor (hVEGF-165; see R38921). Alternative splicing of the
CC sequence gives a shorter coding sequence which encodes the 121
CC amino acid hVEGF (see R42607). The full-length coding sequences can
CC be generated using PCR with human foetal vascular smooth muscle
CC poly-A+ RNA as template.
XX

SQ Sequence 121 AA;

Query Match 93.0%; Score 66; DB 14; Length 121;
Best Local Similarity 92.3%; Pred. No. 0.00024;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSEVPTTE 13
|||||
Db 61 cndeglecypsee 73

RESULT 7

W09091 ID W09091 standard; Protein: 121 AA.

AC W09091;

DT 05-MAR-1997 (first entry)

DE Human VEGF/VPF121 for treatment of vascularisation diseases.

XX VEGF; VPF; vascular endothelial cell growth factor;

XX vascular permeability factor; vaccine; vascularisation; cancer;

XX glaucoma; eye tumour; trachoma; psoriasis; granuloma;

XX hypertrophic scar; post-crystalline fibrosis;

XX senile disk muscular degeneration.

XX Homo sapiens.

XX JP08225462-A.

PN 03-SEP-1996.

PF 30-NOV-1995; 95JP-0312562.

PR 01-DEC-1994; 94JP-0298718.

XX (TOAG) TOA GOSSET CHEM IND LTD.

XX WPI; 1996-450932/45.

PF Vaccine for treatment of vascularisation diseases, e.g. cancer -
PF comprises peptide derived from vascular endothelial cell growth
PF factor

XX Example; Page 6-7; 7pp; Japanese.

XX A vaccine for treatment and prevention of diseases caused by
XX vascularisation comprising a cell growth factor or its fragments
XX which stimulate vascular cell proliferation is provided. The
XX vaccine can be used for treating cancers, glaucoma, eye tumours,
XX trachoma, psoriasis, granuloma, hypertrophic scars,
XX post-crystalline fibrosis and senile disk muscular degeneration.
XX A preferred protein for use in the vaccine is human VEGF/VPF121,
XX i.e. the present sequence.

SQ Sequence 121 AA;

Query Match 93.0%; Score 66; DB 17; Length 121;
Best Local Similarity 92.3%; Pred. No. 0.00024;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSEVPTTE 13
|||||

CC to monoclonal antibodies raised against them which are useful as
 CC anticancer agents.
 XX
 SQ Sequence 121 AA;

Query Match 93.0%; Score 66; DB 17; Length 121;
 Best Local Similarity 92.3%; Pred. No. 0.00024;
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 QY 1 CNDEGLSEVPTTE 13
 |||||
 Db 61 cndeglecyp tee 73

RESULT 11
 W40597
 ID W40597 standard; protein; 121 AA.
 XX
 AC W40597;
 XX
 DT 31-MAR-1998 (first entry)
 XX
 DE VEGF/VPE121.
 XX
 KM Vascular endothelial growth factor; VEGF; permeability; VPF;
 KW Immunotherapy; vaccine; cancer; vascularisation.
 XX
 OS Homo sapiens.
 XX
 PN JP09316000-A.
 XX
 PD 09-DEC-1997.
 XX
 PF 31-MAY-1996; 96JP-0138659.
 XX
 PR 31-MAY-1996; 96JP-0138659.
 XX
 PA (TOAG) TOA GOSKI CHEM IND LTD.
 XX
 DR WPI; 1998-082577/08.
 XX

PT Vascularisation-controlling vaccine - contains endothelial cell
 PT growth factor, used in the immunotherapy of solid tumours
 XX
 PS Disclosure: Page 7; 9pp; Japanese.

CC The patent discloses a vascularisation-controlling vaccine comprising
 CC a cell growth factor which specifically promotes growth of endothelial
 CC cells. The vaccine is typically used in immunotherapy to remedy diseases
 CC caused by vascularisation, such as solid tumours, and to control the
 CC onset and recurrence of such diseases. Typical growth factors include
 CC vascular permeability factor (VPF) and vascular endothelial growth
 CC factor (VEGF). The present sequence is that of human VEGF/VPE121.
 XX
 SQ Sequence 121 AA;

Query Match 93.0%; Score 66; DB 19; Length 121;
 Best Local Similarity 92.3%; Pred. No. 0.00024;
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 QY 1 CNDEGLSEVPTTE 13
 |||||
 Db 61 cndeglecyp tee 73

RESULT 12
 Y23943
 ID Y23943 standard; peptide; 121 AA.
 XX
 AC Y23943;
 XX

DT 21-SEP-1999 (first entry)
 XX
 DE Amino acid sequence of vascular endothelial growth factor (VEGF) 121.
 DE
 XX Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.
 KM
 OS Homo sapiens.
 XX
 PN JP11178593-A.
 XX
 PD 06-JUL-1999.
 XX
 PF 24-DEC-1997; 97JP-0365972.
 XX
 PR 24-DEC-1997; 97JP-0365972.
 XX
 PA (FURE) FUJIREBIO KK.
 XX
 DR WPI; 1999-437318/37.
 XX
 PT New VEGF121-specific monoclonal antibody - useful for measuring
 PT levels of VEGF121.
 XX
 PS Disclosure: Page 5; 6pp; Japanese.
 XX
 CC The present sequence represents vascular endothelial growth factor
 CC (VEGF) 121. The specification describes a monoclonal antibody which
 CC is specific to VEGF 121, and a hybridoma producing this antibody. The
 CC antibody is used in a method for measuring the amount of VEGF 121
 CC present in a sample.
 XX
 SQ Sequence 121 AA;

Query Match 93.0%; Score 66; DB 20; Length 121;
 Best Local Similarity 92.3%; Pred. No. 0.00024;
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 QY 1 CNDEGLSEVPTTE 13
 |||||
 Db 61 cndeglecyp tee 73

RESULT 13
 Y08278
 ID Y08278 standard; Protein; 121 AA.
 XX
 AC Y08278;
 XX
 DT 14-JUL-1999 (first entry)
 XX
 DE Human growth factor protein fragment VEGF-A121.
 XX
 KW Growth factor; human; dimer; cysteine knot; cellular inclusion body;
 KW pharmaceutical.
 XX
 OS Homo sapiens.
 XX
 PN DE19748734-A1.
 XX
 PD 06-MAY-1999.
 XX
 PF 05-NOV-1997; 97DE-1048734.
 XX
 PR 05-NOV-1997; 97DE-1048734.
 XX
 PA (GBFB) GES BIOTECHNOLOGISCHE FORSCHUNG MBH.
 XX
 PI Erdmann H, Kaerst U, Mueller C, Rinas U, Welch H;
 XX
 DR WPI; 1999-278785/24.
 XX
 PT Preparing active growth factor dimers from inclusion bodies in high

Thu Nov 9 15:49:59 2000

us-09-266-543-8.rag

Db ||||| |||||
61 cndeglectpree 73

Search completed: November 9, 2000, 15:30:40
Job time: 105 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:33:02 ; Search time 63.67 seconds
(without alignments)
3,422 Million cell updates/sec

Title: US-09-266-543-8

Perfect score: 71
Sequence: 1 CNDEGLSEVPTSE 13

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 1676186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database : Issued_patents_AA:*
1: /cgn2_6/ptodata/2/1aa/5A.COMB.pep:*
2: /cgn2_6/ptodata/2/1aa/5B.COMB.pep:*
3: /cgn2_6/ptodata/2/1aa/6.COMB.pep:*
4: /cgn2_6/ptodata/2/1aa/PCUS.COMB.pep:*
5: /cgn2_6/ptodata/2/1aa/backfile1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	66	93.0	109	US-08-691-794-3	Sequence 3, Appl1
2	66	93.0	121	5194596-19	Patent No. 5194596
3	66	93.0	121	5219739-20	Patent No. 5219739
4	66	93.0	145	US-08-784-551C-2	Sequence 2, Appl1
5	66	93.0	147	US-08-807-992B-1	Sequence 1, Appl1
6	66	93.0	165	5194596-18	Patent No. 5194596
7	66	93.0	165	5219739-19	Patent No. 5219739
8	66	93.0	191	US-08-567-200A-2	Sequence 2, Appl1
9	66	93.0	191	US-08-807-992B-2	Sequence 2, Appl1
10	66	93.0	191	US-08-691-794-2	Sequence 2, Appl1
11	66	93.0	191	5332671-4	Patent No. 5332671
12	66	93.0	214	5240848-11	Patent No. 5240848
13	66	93.0	215	US-08-807-992B-3	Sequence 3, Appl1
14	66	93.0	215	5219739-22	Patent No. 5219739
15	66	93.0	215	5240848-7	Patent No. 5240848
16	66	93.0	231	PCT-US96-09001-10	Sequence 10, Appl1
17	66	93.0	232	US-08-989-811-7	Sequence 7, Appl1
18	66	93.0	232	US-08-824-986-9	Sequence 9, Appl1
19	66	93.0	232	US-08-807-992B-4	Sequence 4, Appl1
20	66	93.0	232	US-09-042-105-7	Sequence 4, Appl1
21	66	93.0	132	US-08-742-243-45	Sequence 45, Appl1
22	60	84.5	120	5194596-9	Patent No. 5194596
23	60	84.5	120	5219739-9	Patent No. 5219739
24	60	84.5	164	5194596-17	Patent No. 5194596
25	60	84.5	164	5219739-17	Patent No. 5219739
26	60	84.5	164	5219739-18	Patent No. 5219739
27	60	84.5	190	5332671-3	Patent No. 5332671
28	55	77.5	189	US-08-469-427A-15	Sequence 15, Appl1

29	55	77.5	190	2	US-08-569-063C-20	Sequence 20, Appl1
30	51	71.8	12	3	US-08-742-243-44	Sequence 44, Appl1
31	51	71.8	12	3	US-08-742-243-46	Sequence 46, Appl1
32	45	63.4	102	1	US-08-469-427A-2	Sequence 2, Appl1
33	45	63.4	102	2	US-08-609-443B-2	Sequence 2, Appl1
34	45	63.4	102	2	US-08-569-063C-2	Sequence 2, Appl1
35	45	63.4	133	1	US-08-469-427A-9	Sequence 9, Appl1
36	45	63.4	133	2	US-08-609-443B-9	Sequence 9, Appl1
37	45	63.4	133	2	US-08-569-063C-9	Sequence 9, Appl1
38	45	63.4	188	1	US-08-469-427A-5	Sequence 5, Appl1
39	45	63.4	188	1	US-08-469-427A-11	Sequence 11, Appl1
40	45	63.4	188	2	US-08-609-443B-5	Sequence 5, Appl1
41	45	63.4	188	2	US-08-609-443B-11	Sequence 11, Appl1
42	45	63.4	188	2	US-08-569-063C-5	Sequence 5, Appl1
43	45	63.4	188	2	US-08-569-063C-11	Sequence 11, Appl1
44	45	63.4	195	1	US-08-469-427A-7	Sequence 7, Appl1
45	45	63.4	195	2	US-08-609-443B-7	Sequence 7, Appl1

ALIGNMENTS

RESULT 1
US-08-691-794-3
Sequence 3, Application US/08691794
Patent No. 6057428
GENERAL INFORMATION:
APPLICANT: Keyt, Bruce A.
APPLICANT: Nguyen, Francis H.
APPLICANT: Ferrara, Napoleone
APPLICANT: Cunningham, Brian C.
APPLICANT: Wells, James A.
TITLE OF INVENTION: Variants of Vascular Endothelial Cell
TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their
NUMBER OF SEQUENCES: 45
CORRESPONDENCE ADDRESS:
ADDRESSEE: Flehr, Hohbach, Test, Albritton & Herbert
STREET: Four Embarcadero Center, Suite 3400
CITY: San Francisco
STATE: California
COUNTRY: United States
ZIP: 94111-4187
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/691,794
FILING DATE: 02-AUG-1996
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/002,827
FILING DATE: 25-AUG-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/567,200
FILING DATE: 05-DEC-1995
ATTORNEY/AGENT INFORMATION:
NAME: Dreger, Walter H.
REGISTRATION NUMBER: 24,190
REFERENCE/DOCKET NUMBER: A-63758/WHD
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 781-1989
TELEFAX: (415) 398-3249
TELEX: 910 277299
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 109 amino acids
TYPE: amino acid
STRANDEDNESS: unknown
TOPOLOGY: unknown

MOLECULE TYPE: protein
US-08-691-794-3

Query Match 93.0%; Score 66; DB 3; Length 109;
Best Local Similarity 92.3%; Pred. No. 0.00011;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLESVPTTE 13
Db 61 CNDEGLECVPTTE 73

RESULT 2
5194596-19
PATENT NO. 5194596
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
GROWTH FACTOR
NUMBER OF SEQUENCES: 32
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/450,883
FILING DATE: 14-DEC-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 19:
LENGTH: 121
5194596-19

Query Match 93.0%; Score 66; DB 5; Length 121;
Best Local Similarity 92.3%; Pred. No. 0.00012;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLESVPTTE 13
Db 61 CNDEGLECVPTTE 73

RESULT 3
5219739-20
PATENT NO. 5219739
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
JOHN C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESG120 AND
HVEG121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESG120 AND HVEG121
NUMBER OF SEQUENCES: 40
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/559,041
FILING DATE: 27-JUL-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 450,883
FILING DATE: 14-DEC-1989
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 20:
LENGTH: 121
5219739-20

Query Match 93.0%; Score 66; DB 5; Length 121;
Best Local Similarity 92.3%; Pred. No. 0.00012;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLESVPTTE 13
Db 61 CNDEGLECVPTTE 73

RESULT 4

US-08-784-551C-2
Sequence 2, Application US/08784551C
Patent No. 6013780

GENERAL INFORMATION:
APPLICANT: Gera Neufeld
APPLICANT: Eli Keshet
APPLICANT: Israel Vlodavsky
APPLICANT: Zoya Poltorak
TITLE OF INVENTION: ANGIOGENIC FACTOR AND USE THEREOF
IN TREATING CARDIOVASCULAR DISEASE
NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
ADDRESSEE: Blank, Rome, Comisky & McCauley LLP
STREET: 900 17th Street, N.W.
CITY: Washington, D.C.
STATE: N/A
COUNTRY: U.S.A.
ZIP: 20006

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5" Diskette, 1.44 MB
MEDIUM TYPE: storage
COMPUTER: IBM Compatible
OPERATING SYSTEM: IBM P.C. DOS 5.0
SOFTWARE: FASTSEQ for Windows 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/784,551C
FILING DATE: January 21, 1997
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Cohen, Herbert
REGISTRATION NUMBER: 25,109
REFERENCE/DOCKET NUMBER: 0274.005/P003
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 463-7700
TELEFAX: (202) 463-6915
TELEX:

INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 145 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-784-551C-2

Query Match 93.0%; Score 66; DB 3; Length 145;
Best Local Similarity 92.3%; Pred. No. 0.00015;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLESVPTTE 13
Db 61 CNDEGLECVPTTE 73

RESULT 5
US-08-807-992B-1
Sequence 1, Application US/08807992B
Patent No. 6022541

GENERAL INFORMATION:
APPLICANT: Seizer, Donald R
APPLICANT: Dvorak, Harold F
TITLE OF INVENTION: Immunological preparation for concurrent
specific binding to spatially exposed regions of vascular
permeability factor bound in-vivo to a tumor associated b10
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS:
ADDRESSEE: David Frashker, Esq.
STREET: P.O. Box 5387

CITY: Magnolia
STATE: Massachusetts
COUNTRY: USA
ZIP: 01930
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.40 MB storage
COMPUTER: IBM PS/1
OPERATING SYSTEM: MS DOS
SOFTWARE: Wordperfect version 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/807,992B
FILING DATE: March 3, 1997
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: David Prashker, Esq.
REGISTRATION NUMBER: 29,693
REFERENCE/DOCKET NUMBER: BIS-033
TELECOMMUNICATION INFORMATION:
TELEPHONE: (978) 525-3794
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 147 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-807-992B-1

Query Match 93.0%; Score 66; DB 3; Length 147;
Best Local Similarity 92.3%; Pred. No. 0.00015;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESVPTTE 13
Db 87 CNDEGLECVPTTE 99

RESULT 6
5194596-18
PATENT NO. 5194596
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
GROWTH FACTOR
NUMBER OF SEQUENCES: 32
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/450,883
FILING DATE: 14-DEC-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 18
LENGTH: 165
5194596-18

Query Match 93.0%; Score 66; DB 5; Length 165;
Best Local Similarity 92.3%; Pred. No. 0.00017;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESVPTTE 13
Db 61 CNDEGLECVPTTE 73

RESULT 7
5219739-19
PATENT NO. 5219739
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND BVGEF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND BVGEF121

NUMBER OF SEQUENCES: 40
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/559,041
FILING DATE: 27-JUL-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 450,883
FILING DATE: 14-DEC-1989
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 19
LENGTH: 165
5219739-19

Query Match 93.0%; Score 66; DB 5; Length 165;
Best Local Similarity 92.3%; Pred. No. 0.00017;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESVPTTE 13
Db 61 CNDEGLECVPTTE 73

RESULT 8
US-08-567-200A-2
SEQUENCE 2, Application US/08567200A
PATENT NO. 6020473
GENERAL INFORMATION:
APPLICANT: Keyt, Bruce A.
APPLICANT: Nguyen, Francis H.
APPLICANT: Ferrara, Napoleone
TITLE OF INVENTION: Variants of Vascular Endothelial Cell
TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their
NUMBER OF SEQUENCES: 42
CORRESPONDENCE ADDRESS:
ADDRESSEE: Flehr, Hohbach, Test, Albritton & Herbert
STREET: Four Embarcadero Center, Suite 3400
CITY: San Francisco
STATE: California
COUNTRY: United States
ZIP: 94111-4187
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/567,200A
FILING DATE: 05-DEC-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Dreger, Walter H.
REGISTRATION NUMBER: 24,190
REFERENCE/DOCKET NUMBER: A-62326-1/WHD
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 781-1989
TELEFAX: (415) 396-3249
TELEX: 910 277299
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 191 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-567-200A-2

Query Match 93.0%; Score 66; DB 3; Length 191;
Best Local Similarity 92.3%; Pred. No. 0.0002;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESVPTTE 13

Db 87 CNDEGLECVPTPE 99

RESULT 9

US-08-807-992B-2

Sequence 2, Application US/08807992B

Patent No. 6022541

GENERAL INFORMATION:

APPLICANT: Senger, Donald R

APPLICANT: Dvorak, Harold F

TITLE OF INVENTION: Immunological preparation for concurrent

TITLE OF INVENTION: Specific binding to spatially exposed regions of vascular

TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood

NUMBER OF SEQUENCES: 31

CORRESPONDENCE ADDRESS:

ADDRESSEE: David Prashker, Esq.

STREET: P.O. Box 5387

CITY: Magnolia

STATE: Massachusetts

COUNTRY: USA

ZIP: 01930

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.50 inch, 1.40 MB storage

COMPUTER: IBM PS/1

OPERATING SYSTEM: MS DOS

SOFTWARE: Wordperfect version 5.1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/807,992B

FILING DATE: March 3, 1997

CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:

NAME: David Prashker, Esq.

REGISTRATION NUMBER: 29,693

REFERENCE/DOCKET NUMBER: BIS-033

TELECOMMUNICATION INFORMATION:

TELEPHONE: (978) 525-3794

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:

LENGTH: 191 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-807-992B-2

Query Match 93.0%; Score 66; DB 3; Length 191;
Best Local Similarity 92.3%; Pred. No. 0.0002;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 87 CNDEGLECVPTPE 99

Query Match 93.0%; Score 66; DB 3; Length 191;
Best Local Similarity 92.3%; Pred. No. 0.0002;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

RESULT 10

US-08-691-794-2

Sequence 2, Application US/08691794

Patent No. 6057428

GENERAL INFORMATION:

APPLICANT: Keyt, Bruce A.

APPLICANT: Nguyen, Francis H.

APPLICANT: Ferrara, Napoleone

APPLICANT: Cunningham, Brian C.

APPLICANT: Wells, James A.

APPLICANT: Li, Bing

TITLE OF INVENTION: Variants of Vascular Endothelial Cell

TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their

TITLE OF INVENTION: Production

NUMBER OF SEQUENCES: 45

CORRESPONDENCE ADDRESS:

ADDRESSEE: Flehr, Hohbach, Test, Albritton & Herbert

STREET: Four Embarcadero Center, Suite 3400

CITY: San Francisco

STATE: California

COUNTRY: United States

ZIP: 94111-4187

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/691,794

FILING DATE: 02-AUG-1996

CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 60/002,827

FILING DATE: 25-AUG-1995

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/567,200

FILING DATE: 05-DEC-1995

ATTORNEY/AGENT INFORMATION:

NAME: Dreger, Walter H.

REGISTRATION NUMBER: 24,190

REFERENCE/DOCKET NUMBER: A-63758/WHD

TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 781-1989

TELEFAX: (415) 398-3249

TELEX: 910 277299

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:

LENGTH: 191 amino acids

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-691-794-2

Query Match 93.0%; Score 66; DB 3; Length 191;
Best Local Similarity 92.3%; Pred. No. 0.0002;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 87 CNDEGLECVPTPE 99

Query Match 93.0%; Score 66; DB 3; Length 191;
Best Local Similarity 92.3%; Pred. No. 0.0002;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

RESULT 11

5332671-4

Patent No. 5332671

APPLICANT: FERRARA, NAPOLEONE; LEUNG, DAVID W. H.

TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL

GROWTH FACTOR AND DNA ENCODING SAME

NUMBER OF SEQUENCES: 15

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/389,722

FILING DATE: 04-AUG-1989

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 369,424

FILING DATE: 21-JUN-1989

APPLICATION NUMBER: 351,117

FILING DATE: 12-MAY-1989

SEQ ID NO: 4

LENGTH: 191

5332671-4

Query Match 93.0%; Score 66; DB 5; Length 191;
Best Local Similarity 92.3%; Pred. No. 0.0002;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 87 CNDEGLECVPTPE 99

Query Match 93.0%; Score 66; DB 5; Length 191;
Best Local Similarity 92.3%; Pred. No. 0.0002;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

RESULT 12
5240848-11
; Patent No. 5240848
; APPLICANT: KECK, PAMELA J.; CONNOLLY, DANIEL T.; FEDER, JOSEPH
; TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR
; PERMEABILITY FACTOR HAVING 189 AMINO ACIDS
; NUMBER OF SEQUENCES: 11
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/337,037
; FILING DATE: 10-JUL-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 274,061
; FILING DATE: 21-NOV-1988
; SEQ ID NO: 11
; LENGTH: 214
5240848-11

Query Match 93.0%; Score 66; DB 5; Length 214;
Best Local Similarity 92.3%; Pred. No. 0.00023;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
QY 1 CNDGLESVPTEE 13
Db 87 CNDGLECVPTTE 99

RESULT 13
US-08-807-992B-3
; Sequence 3, Application US/08807992B
; Patent No. 6022541
; GENERAL INFORMATION:
; APPLICANT: Senger, Donald R
; TITLE OF INVENTION: Immunological preparation for concurrent
; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
; NUMBER OF SEQUENCES: 31
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: David Prashker, Esq.
; STREET: P.O. Box 5387
; CITY: Magnolia
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 01930
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
; COMPUTER: IBM PS/1
; OPERATING SYSTEM: MS DOS
; SOFTWARE: Wordperfect version 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/807,992B
; FILING DATE: March 3, 1997
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: David Prashker, Esq.
; REGISTRATION NUMBER: 29,693
; REFERENCE/DOCKET NUMBER: BIS-033
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (978) 525-3794
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 215 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
US-08-807-992B-3

Query Match 93.0%; Score 66; DB 3; Length 215;

Best Local Similarity 92.3%; Pred. No. 0.00023;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13
Db 87 CNDGLECVPTTE 99

RESULT 14
5219739-22
; Patent No. 5219739
; APPLICANT: FISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVEGF120 AND
; HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVEGF120 AND HVEGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 22
; LENGTH: 215
5219739-22

Query Match 93.0%; Score 66; DB 5; Length 215;
Best Local Similarity 92.3%; Pred. No. 0.00023;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13
Db 87 CNDGLECVPTTE 99

RESULT 15
5240848-7
; Patent No. 5240848
; APPLICANT: KECK, PAMELA J.; CONNOLLY, DANIEL T.; FEDER, JOSEPH
; TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR
; PERMEABILITY FACTOR HAVING 189 AMINO ACIDS
; NUMBER OF SEQUENCES: 11
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/337,037
; FILING DATE: 10-JUL-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 274,061
; FILING DATE: 21-NOV-1988
; SEQ ID NO: 7
; LENGTH: 215
5240848-7

Query Match 93.0%; Score 66; DB 5; Length 215;
Best Local Similarity 92.3%; Pred. No. 0.00023;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13
Db 87 CNDGLECVPTTE 99

Search completed: November 9, 2000, 15:33:02
Job time: 243 sec

Thu Nov 9 15:50:00 2000

us-09-266-543-8.rtf

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:39 ; Search time 94.87 Seconds
(without alignments)
9.371 Million cell updates/sec

Title: US-09-266-543-7
Perfect score: 138
Sequence: 1 CNDEGLSEVPTESNITMQIMRIKPH 26

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues
Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

A_Geneseq_36:*

- 1: /SIDSL/gcgdata/geneseq/geneseq/AA1980.DAT:*
- 2: /SIDSL/gcgdata/geneseq/geneseq/AA1981.DAT:*
- 3: /SIDSL/gcgdata/geneseq/geneseq/AA1982.DAT:*
- 4: /SIDSL/gcgdata/geneseq/geneseq/AA1983.DAT:*
- 5: /SIDSL/gcgdata/geneseq/geneseq/AA1984.DAT:*
- 6: /SIDSL/gcgdata/geneseq/geneseq/AA1985.DAT:*
- 7: /SIDSL/gcgdata/geneseq/geneseq/AA1986.DAT:*
- 8: /SIDSL/gcgdata/geneseq/geneseq/AA1987.DAT:*
- 9: /SIDSL/gcgdata/geneseq/geneseq/AA1988.DAT:*
- 10: /SIDSL/gcgdata/geneseq/geneseq/AA1989.DAT:*
- 11: /SIDSL/gcgdata/geneseq/geneseq/AA1990.DAT:*
- 12: /SIDSL/gcgdata/geneseq/geneseq/AA1991.DAT:*
- 13: /SIDSL/gcgdata/geneseq/geneseq/AA1992.DAT:*
- 14: /SIDSL/gcgdata/geneseq/geneseq/AA1993.DAT:*
- 15: /SIDSL/gcgdata/geneseq/geneseq/AA1994.DAT:*
- 16: /SIDSL/gcgdata/geneseq/geneseq/AA1995.DAT:*
- 17: /SIDSL/gcgdata/geneseq/geneseq/AA1996.DAT:*
- 18: /SIDSL/gcgdata/geneseq/geneseq/AA1997.DAT:*
- 19: /SIDSL/gcgdata/geneseq/geneseq/AA1998.DAT:*
- 20: /SIDSL/gcgdata/geneseq/geneseq/AA1999.DAT:*
- 21: /SIDSL/gcgdata/geneseq/geneseq/AA2000.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	133	96.4	110	21	Y69417
2	133	96.4	110	21	Y83038
3	133	96.4	121	12	R1385
4	133	96.4	121	14	R42607
5	133	96.4	121	17	W09091
6	133	96.4	121	17	W03677
7	133	96.4	121	17	R96043
8	133	96.4	121	17	R93977
9	133	96.4	121	19	W40597
10	133	96.4	121	20	Y23943
11	133	96.4	121	20	Y08278
12	133	96.4	145	19	W56693

13	133	96.4	145	20	Y08279
14	133	96.4	145	21	Y69413
15	133	96.4	145	21	Y83034
16	133	96.4	147	16	R91075
17	133	96.4	147	17	R94001
18	133	96.4	147	19	W62524
19	133	96.4	147	20	Y33437
20	133	96.4	147	21	Y90402
21	133	96.4	147	21	Y69412
22	133	96.4	147	21	Y83033
23	133	96.4	148	17	R94031
24	133	96.4	148	17	R94032
25	133	96.4	164	20	Y43482
26	133	96.4	165	12	R10917
27	133	96.4	165	14	R38921
28	133	96.4	165	20	Y08280
29	133	96.4	171	20	Y07473
30	133	96.4	188	20	Y43484
31	133	96.4	189	20	Y08281
32	133	96.4	189	21	Y92005
33	133	96.4	191	11	R08002
34	133	96.4	191	16	R91076
35	133	96.4	191	17	W00724
36	133	96.4	191	17	R94002
37	133	96.4	191	18	W38242
38	133	96.4	191	19	W69331
39	133	96.4	191	19	W62525
40	133	96.4	191	19	W57398
41	133	96.4	191	19	W57399
42	133	96.4	191	20	Y33439
43	133	96.4	191	21	Y90403
44	133	96.4	191	21	Y69414
45	133	96.4	191	21	Y83035

ALIGNMENTS

RESULT 1	
Y69417	
ID Y69417 standard; Protein; 110 AA.	
XX Y69417;	
DT 03-JUL-2000 (first entry)	
DE	
XX	
XX	
Human; vascular endothelial growth factor 110.	
KW blood vessel injury; vascular injury; macrovascular angiopathy;	
KW thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;	
KW toxic shock syndrome; venom; hypercoagulable state; platelet activation;	
KW platelet aggregation; thrombosis; preclampsia; sepsis; pancreatitis;	
KW intravascular coagulation; thrombotic thrombocytopenia purpura;	
KW acute renal failure; myocardial infarction; ischemic bowel disease;	
KW stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;	
KW acute respiratory distress syndrome; pneumonia; pulmonary emboli;	
KW birth prematurity disorder; wound; allergy; hypersensitivity;	
KW autoimmune disease; organ transplant; focal glomerulosclerosis;	
XX amyloidosis.	
XX	
OS Homo sapiens.	
XX	
PN W0200013702-A2.	
XX	
PD 16-MAR-2000.	
XX	
PE 09-SEP-1999; 39WO-US20480.	
XX	
PR 09-SEP-1998; 38US-0099694.	
PR 26-MAR-1999; 39US-0126406.	
PR 27-MAR-1999; 39US-0126615.	
XX	

PA (SCIO-) SCIOS INC.
 XX
 PI Schreiner GF, Johnson RJ;
 XX
 DR WPI; 2000-256861/22.
 XX
 PT Novel methods and compositions for the prevention and treatment of
 PT microvascular angiotensins by administration of angiogenic factors such
 XX as vascular endothelial growth factor (VEGF)
 PS
 XX Disclosure: Fig 12; 46pp; English.
 XX
 CC The present sequence represents native human vascular endothelial growth
 CC factor (VEGF) 110. VEGF is an angiogenic factor. VEGF proteins are used
 CC for the prevention or repair of injury to blood vessels or associated
 CC nonvascular tissues (served by the blood vessels) and for the prevention
 CC and repair of vascular injury associated with microvascular angiopathy,
 CC particularly thrombotic microangiopathy. The proteins methods may also
 CC be used for the prevention and treatment of kidney diseases associated
 CC with injury to, or atrophy of, the vasculature of the glomerulus and
 CC interstitium. Conditions which may be treated include haemolytic uremic
 CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,
 CC hypercoagulable states, platelet activation or aggregation, thrombosis,
 CC pre-eclampsia, thrombotic thrombocytopenia purpura, disseminated
 CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,
 CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung
 CC endothelium injury, acute respiratory distress syndrome, toxic alveolar
 CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,
 CC wounds, allergic reactions, hypersensitivity autoimmune diseases, organ
 CC transplants, focal glomerulosclerosis, and amyloidosis.
 XX
 SO Sequence 110 AA:
 XX
 QY 1 CNDGLESVPTEESNTTQMIRIKPH 26
 Db 61 cndglecypteesnttqmirkph 86
 XX
 RESULT 2 96.4%; Score 133; DB 21; Length 110;
 Y83038 Best Local Similarity 96.2%; Pred. No. 7.2e-14;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 XX
 AC Y83038;
 XX
 DT 04-JUL-2000 (first entry)
 XX
 DE Human vascular endothelial growth factor (hVEGF110).
 XX
 KW Vascular endothelial growth factor; human; angiogenesis; VEGF;
 KW capillary formation; hypertension; treatment; kidney; CNS; stroke;
 KW meningitis; central nervous system; tumour; infection; bone growth;
 KW hypoxia; hypercapnia; fibrosis; inflammatory bowel disease;
 KW diarrhoea; allografts; cardiac valve.
 XX
 OS Homo sapiens.
 XX
 PN WO200013703-A2.
 PD 16-MAR-2000.
 XX
 PF 09-SEP-1999; 99WO-US20481.
 XX
 PR 09-SEP-1998; 98US-0099694.
 PR 26-MAR-1999; 99US-0126406.
 PR 27-MAR-1999; 99US-0126615.
 XX
 PA (SCIO-) SCIOS INC.

XX
 PI Schreiner GF, Johnson RJ;
 XX
 DR WPI; 2000-256862/22.
 XX
 PT Novel methods for treating hypertension by administering a factor which
 PT increases angiotensin and/or vascular permeability
 XX
 PS
 XX Disclosure: Figure 11; 51pp; English.
 XX
 CC Administering vascular endothelial growth factor (VEGF) can be used
 CC for treating hypertension (especially salt-dependent hypertension)
 CC Administration of VEGF promotes angiogenesis and/or vascular or
 CC capillary permeability. The method is also useful in treating
 CC disorders related to abnormal transport of solutes across endothelial
 CC cells. Such disorders include the treatment or prevention of kidney
 CC disease associated with impaired filtration or excretion of solutes;
 CC the treatment or prevention of diseases of the central nervous system
 CC associated with alterations in cerebrospinal fluid, e.g. stroke,
 CC meningitis, tumour, infections, and bone growth disorders; treatment
 CC or prevention of hypoxia or hypercapnia or fibrosis arising from
 CC accumulation of fluid secretions in the lungs, e.g. acute respiratory
 CC distress syndrome, toxic alveolar injury, pneumonia, infections,
 CC surgical intervention, cystic fibrosis; treatment or prevention of
 CC pulmonary dysfunction arising from injury to the pulmonary
 CC endothelium, including disorders arising from premature birth, and
 CC pulmonary hypertension; treatment or prevention of disease arising
 CC from disordered transport of fluid and solutes across the intestinal
 CC epithelium, e.g. inflammatory bowel disease, diarrhoea; treatment or
 CC prevention of ascites accumulation in the peritoneum; enhancement of
 CC efficacy of solute flux; preservation or enhancement of function of
 CC organ allografts; and treatment of cardiac valve disease. This
 CC sequence is the native human vascular endothelial growth
 CC factor hVEGF110. The activity of VEGF is mediated by interaction
 CC with specific receptors on target tissues, most notably the vascular
 CC endothelium. VEGF exists as five different length monomer chains due
 CC to alternative splicing of the VEGF RNA transcript.
 XX
 SO Sequence 110 AA:
 XX
 QY 1 CNDGLESVPTEESNTTQMIRIKPH 26
 Db 61 cndglecypteesnttqmirkph 86
 XX
 RESULT 3 96.4%; Score 133; DB 21; Length 110;
 R11385 Best Local Similarity 96.2%; Pred. No. 7.2e-14;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 XX
 AC R11385;
 XX
 DT 08-MAY-1991 (first entry)
 XX
 DE Human vascular endothelial cell growth factor 121.
 XX
 KW Bovine vascular endothelial cell growth factor; angiogenesis;
 KW wound healing; hVEGF; PDGF.
 XX
 OS Bos taurus.
 XX
 PN WO9102058-A.
 PD 21-FEB-1991.
 XX
 PF 27-JUL-1990; 50WO-US04227.
 XX
 PR 14-DEC-1989; 69US-0450883.
 PR 27-JUL-1989; 69US-0387545.

XX PA (CALB-) CALIF BIOTECHN INC.
XX PI
XX RI Tischer ER, Abrahman, Fiddes JC, Mitchell RL;
XX DR WPI; 1991-073534/10.
XX N-PSDB; Q11099.
XX PT DNA encoding vascular endothelial cell growth factor - used for
PT producing the factor for angiogenesis and re-endothelialisation
PT in wound healing
PS
PS Disclosure: Fig 7(1-2); 94pp; English.

CC The two forms of VEGF (Q10797 and Q10917) which arise through
CC different message splicing, have different properties. In partic.
CC hVGF β 121 does not bind to heparin leaving more of the protein free to
CC bind to VEGF receptor and increase the half-life and distribution of
CC the protein in circulation, whereas hVGF β 165 binds heparin strongly.
CC The product can be used for angiogenesis and re-endothelialisation
CC of inner vascular surfaces in wound healing, e.g. treatment of full-
CC thickness wounds such as dermal ulcers, venous ulcers and diabetic
CC ulcers, burns, in surgery, in balloon angioplasty and for the in
CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF
CC and VEGF can exhibit a mitogenic profile between each factor and
CC can be used for wound healing or as inhibitors of angiogenesis for
CC e.g. preventing the growth of tumours.
CC VEGF analogues in which CYS residues are substid. are more stable.
CC See also Q10791-93; Q10796-97; Q10806-08 and Q11099.
XX
XX Sequence 121 AA;

```

PR      27-JUL-1990;       90US-0559041.
XX
PA      (SCIO-) SCIOS NOVA INC.
XX
PI      Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;
XX
DR      WPI; 1993-205302/25.
XX
DR      N-PSDB; Q49601.
XX
PT      Isolated DNA sequences, expression vectors and transformant cells
PT      - used for large scale prodn. of vascular endothelial cell growth
PT      factor for treating wounds in which neo-vascularisation is
PT      required
XX
PS      Claim 3; Fig 7; 40pp.;English.
XX
CC      The sequence of Q44260 contains an open reading frame corresponding
CC      to the 165 amino acid human vascular endothelial cell growth
CC      factor (hVEGF-165, see R38921). Alternative splicing of the
CC      sequence gives a shorter coding sequence which encodes the 121
CC      amino acid hVEGF (see R42607). The full-length coding sequences can
CC      be generated using PCR with human foetal vascular smooth muscle
CC      poly-A+ RNA as template.
XX
SQ      Sequence      121 AA;

Query Match          96.4%; Score 133; DB 14; Length 121;
Best Local Similarity 96.2%; Pred. No. 8,le-14;
Matches    25; Conservative   0; Mismatches    1; Indels     0; Gaps     0;

```

Query Match	96.4%	Score 133	DB 12	length 121
Best Local Similarity	96.2%	Pred. No. 8	le-14	
Matches 25	Conservative 0	Mismatches 1	Indels 0	Gaps 0
Oy	1	CMDEGLESYPTESNTTMOIMRKPH	26	
Db	61	cndgeiecvpteesnltnmqimrkph	86	

Query Match	96.4%	Score 133	DB 14	Length 121
Best Local Similarity	96.2%	Pred. No. 8	1e-14	
Matches 25	Conservative 0	Mismatches 1	Indels 0	Gaps 0
QY	1	CNDEGLSEVPTEESNITMQIMRIKPH	26	
Db	61	cndegleeypceesnitmqimrikph	86	
RESULT	5			
W09091				
ID	W09091	standard	protein	121 AA.
XX				

RESULT	4
ID	R42607 standard; Protein; 121 AA.
XX	
XX	
AC	R42607;
XX	
DI	28-OCT-1993 (first entry)
XX	
XX	Human VEGF-121.
XX	
KW	Angiogenesis; wound healing; mitogen; vascular endothelial cells;
KW	Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.
XX	
OS	Homo sapiens.
XX	
FN	Key
FT	Misc-difference 7
FT	Location/Qualifiers
FT	Misc-difference 115
FT	/note="Inserted amino acid relative to bVEGF"
FT	115
FT	/note="Iys 115 of hVEGF-121 is replaced by 44
FT	amino acids encoded by an alternatively
FT	spliced exon in hVEGF-165 (see R38921)"
XX	
PN	US5219739-A.
XX	
PD	15-JUN-1993.
XX	
PE	27-JUL-1989; 89US-0387545.
XX	
PR	27-JUL-1989; 89US-0387545.
PR	14-DEC-1989; 89US-0450883.

RESULT	5	
ID	W09091	
XX	W09091 standard.; protein; 121 AA.	
XX		
AC	W09091;	
XX		
DT	05-MAR-1997 (first entry)	
XX		
DE	Human VEGF/VPF121 for treatment of vascularisation diseases.	
XX		
KW	VEGF; VPF; vascular endothelial cell growth factor;	
KW	vascular permeability factor; vaccine; vascularisation; cancer;	
KW	glaucoma; eye tumour; trachoma; psoriasis; granuloma;	
KW	hypertrophic scar; post-crystalline fibrosis;	
KW	senile disk muscular degeneration.	
XX		
OS	Homo sapiens.	
XX		
PN	JP08225462-A.	
XX		
PD	03-SEP-1996.	
XX		
PF	30-NOV-1995; 95JP-0312562.	
XX		
PR	01-DEC-1994; 94JP-0298718.	
XX		
PA	(TOAG) TOA GOSSEI CHEM IND LTD.	
DR	WPI: 1996-450937/45.	
XX		
PT	Vaccine for treatment of vascularisation diseases, e.g. cancer	
PT	comprises peptide derived from vascular endothelial cell growth	
PT	factor	
XX		
PS	Example; Page 6-7; 7pp; Japanese.	
CC	A vaccine for treatment and prevention of diseases caused by	

CC vascularisation comprising a cell growth factor or its fragments
 CC which stimulate vascular cell proliferation is provided. The
 CC vaccine can be used for treating cancers, glaucoma, eye tumours,
 CC trachoma, psoriasis, granuloma, hypertrophic scars,
 CC post-cystalline fibrosis and senile disk muscular degeneration.
 CC A preferred protein for use in the vaccine is human VEGF/VPF121,
 CC i.e. the present sequence.
 XX
 SQ Sequence 121 AA;

Query Match

Best Local Similarity 96.4%; Score 133; DB 17; Length 121;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTESNITMQIRIKPH 26
 DB 61 cndglecyplesnltmqimrikph 86

RESULT 6

W03677
 ID W03677 standard; protein; 121 AA.
 AC W03677;

DT 31-DEC-1996 (first entry)
 DE Vascular permeability factor.

KM Vascular permeability factor; growth factor; overlapping peptide;
 KW monoclonal antibody; hybridoma; cancer.

XX Synthetic.
 OS

PN JP08169898-A.

PD 02-JUL-1996.

PF 06-JUN-1995; 95JP-0162841.

PR 18-OCT-1994; 94JP-0278387.

PR 10-JUN-1994; 94JP-0152805.

PA (TOAG) TOA GOSEI CHEM IND LTD.

DR WPI; 1996-358508/36.

PT New peptide, useful as antigen for preparing vascular permeability
 factor monoclonal antibody - is used in treatment agent for cancers
 and as biochemical reagents

PS Disclosure; Page 10; 13pp; Japanese.

CC This is the amino acid sequence of the vascular permeability factor
 CC (VPF), a member of the growth factor family. Several VPF types are
 CC known having 121, 165, 189 or 206 amino acids. This sequence was used
 CC to generate a series of overlapping peptides having 10 residues which
 CC were used to raise antibodies against the VPF peptide. The two peptides
 CC W03678-9 generated the greatest antibody signal against the VPF protein.
 CC These clones were used to manufacture hybridomas producing monoclonal
 CC antibodies which are useful for diagnosis and treatment of cancers and
 CC other diseases.

SQ Sequence 121 AA;

Query Match 96.4%; Score 133; DB 17; Length 121;
 Best Local Similarity 96.2%; Pred. No. 8.1e-14;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTESNITMQIRIKPH 26
 XX

DB 61 cndglecyplesnltmqimrikph 86

RESULT 7

R96043
 ID R96043 standard; protein; 121 AA.

AC R96043;

DT 20-AUG-1996 (first entry)

DE Human vascular permeability factor.

KM Vascular permeability factor; VPF; human; monoclonal antibody; diagnosis;
 KW therapy; cancer; chimera; humanised antibody.

OS Homo sapiens.

PN JP08053498-A.

PD 27-FEB-1996.

PF 06-JUN-1995; 95JP-0162840.

PR 10-JUN-1994; 94JP-0152804.

PA (TOAG) TOA GOSEI CHEM IND LTD.

DR WPI; 1996-175730/18.

PT Monoclonal antibody reacting with human vascular permeability factor
 - useful for treatment and diagnosis of cancer and other diseases

PS Disclosure; Page 9; 10pp; Japanese.

CC This sequence represents the human vascular permeability factor (hVPF).
 CC The monoclonal antibody of the invention (MW101) reacts with this hVPF
 CC sequence. MW101 does not, however, react with a peptide composed of ten
 CC successive residues of this sequence starting from an odd number from the
 CC N-terminus of this sequence (e.g. residues 1-10, residues 5-14, residues
 CC 47-56 etc.). The antibody can be used for diagnosis and treatment of
 CC cancer and other diseases. When it is used as an anti-cancer agent, it
 CC is preferably in the form of a chimeric or humanised antibody.

SQ Sequence 121 AA;

Query Match 96.4%; Score 133; DB 17; Length 121;
 Best Local Similarity 96.2%; Pred. No. 8.1e-14;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTESNITMQIRIKPH 26
 DB 61 cndglecyplesnltmqimrikph 86

RESULT 8

R93977
 ID R93977 standard; protein; 121 AA.

AC R93977;

DT 12-JUL-1996 (first entry)

DE Vascular permeability factor-121.

KM Vascular permeability factor; VPF121; monoclonal antibody;

KW anticancer.

OS Homo sapiens.

PN JP07330795-A.

XX

PD 19-DEC-1995.
 XX
 PF 07-JUN-1994; 94JP-0125569.
 XX
 PR 07-JUN-1994; 94JP-0125569.
 XX
 PA (TOAG) TOA GOSEI CHEM IND LTD.
 XX
 DR WPI; 1996-074895/08.
 XX
 PT Partial peptide(s) of VPF121 and monoclonal antibodies - useful as
 XX anticancer agents
 PS Disclosure; Page 7; 9pp; Japanese.
 XX
 CC The sequence represents VPF121. The patent relates to three new
 CC short peptides derived from this sequence (see R93978 - R93980) and
 CC to monoclonal antibodies raised against them which are useful as
 CC anticancer agents.
 XX
 SO Sequence 121 AA;
 Query Match 96.4%; Score 133; DB 17; Length 121;
 Best Local Similarity 96.2%; Pred. No. 8.1e-14;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 OY 1 CNDEGLESVPTESNTMQIMRIKPH 26
 DB 61 cndeglecyplesntmqimrllkph 86
 RESULT 9
 ID W40597 standard; protein; 121 AA.
 AC W40597;
 XX
 DT 31-MAR-1998 (first entry)
 XX
 DE VEGF/VPF121.
 XX
 KM vascular endothelial growth factor; VEGF; permeability; VPF;
 KM immunotherapy; vaccine; cancer; vascularisation.
 XX
 OS Homo sapiens.
 XX
 PN JF09316000-A.
 XX
 PD 09-DEC-1997.
 XX
 PF 31-MAY-1996; 96JP-0138659.
 XX
 PR 31-MAY-1996; 96JP-0138659.
 XX
 PA (TOAG) TOA GOSEI CHEM IND LTD.
 XX
 DR WPI; 1998-082577/08.
 XX
 PT Vascularisation-controlling vaccine - contains endothelial cell
 XX growth factor, used in the immunotherapy of solid tumours
 PS Disclosure; Page 7; 9pp; Japanese.
 XX
 CC The patent discloses a vascularisation-controlling vaccine comprising
 CC a cell growth factor which specifically promotes growth of endothelial
 CC cells. The vaccine is typically used in immunotherapy to remedy diseases
 CC caused by vascularisation, such as solid tumours, and to control the
 CC onset and recurrence of such diseases. Typical growth factors include
 CC vascular permeability factor (VPF) and vascular endothelial growth
 CC factor (VEGF). The present sequence is that of human VEGF/VPF121.
 XX
 SO Sequence 121 AA;

Query Match 96.4%; Score 133; DB 19; Length 121;
 Best Local Similarity 96.2%; Pred. No. 8.1e-14;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 OY 1 CNDEGLESVPTESNTMQIMRIKPH 26
 DB 61 cndeglecyplesntmqimrllkph 86
 RESULT 10
 ID Y23943 standard; peptide; 121 AA.
 AC Y23943;
 XX
 DT 21-SEP-1999 (first entry)
 XX
 DE Amino acid sequence of vascular endothelial growth factor (VEGF) 121.
 XX
 KM Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.
 XX
 OS Homo sapiens.
 XX
 PN JP11178593-A.
 XX
 PD 06-JUL-1999.
 XX
 PF 24-DEC-1997; 97JP-0365972.
 XX
 PR 24-DEC-1997; 97JP-0365972.
 XX
 PA (PURE) FUJIREBIO KK.
 XX
 DR WPI; 1999-437318/37.
 XX
 PT New VEGF121-specific monoclonal antibody - useful for measuring
 XX levels of VEGF121
 PS Disclosure; Page 5; 6pp; Japanese.
 XX
 CC The present sequence represents vascular endothelial growth factor
 CC (VEGF) 121. The specification describes a monoclonal antibody which
 CC is specific to VEGF 121, and a hybridoma producing this antibody. The
 CC antibody is used in a method for measuring the amount of VEGF 121
 CC present in a sample.
 XX
 SO Sequence 121 AA;
 Query Match 96.4%; Score 133; DB 20; Length 121;
 Best Local Similarity 96.2%; Pred. No. 8.1e-14;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 OY 1 CNDEGLESVPTESNTMQIMRIKPH 26
 DB 61 cndeglecyplesntmqimrllkph 86
 RESULT 11
 ID Y08278 standard; protein; 121 AA.
 AC Y08278;
 XX
 DT 14-JUL-1999 (first entry)
 XX
 DE Human growth factor protein fragment VEGF-A121.
 XX
 KM Growth factor; human; dimer; cysteine knot; cellular inclusion body;
 KM pharmaceutical.
 XX

OS Homo sapiens.
XX DE19748734-A1.
XX 06-MAY-1999.
XX 05-NOV-1997; 97DE-1048734.
XX 05-NOV-1997; 97DE-1048734.
XX (GBFB) GES BIOTECHNOLOGISCHE FORSCHUNG MBH.
XX Erdmann H, Kaerst U, Mueller C, Rinas U, Welch H;
XX WPI; 1999-278785/24.
XX Preparing active growth factor dimers from inclusion bodies in high
XX yield
XX Claim 14; Page 7; 14pp; German.
XX This invention describes the novel preparation of biologically active
XX dimers of recombinant human growth factors of the cysteine knot family
XX starting from cellular inclusion bodies. Such dimers are useful in
XX pharmaceutical compositions and the method provides yields of 31-39.7%,
XX in examples, compared with about 10% for the conventional method (see
XX Biochemistry, 28 (1989) 2956). Y08278-Y08301 are human growth factor
XX protein fragments used in the method of the invention.
SQ Sequence 121 AA;

Query Match 96.4%; Score 133; DB 20; Length 121;
Best Local Similarity 96.2%; Pred. No. 8.1e-14;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
OY 1 CNDEGLSEVPTRESNITMQIMAKPH 26
DB 61 cndeglecvptresnltmqimikph 86

RESULT 12
W56693
ID W56693 standard; Protein; 145 AA.
AC W56693;
XX 24-JUL-1998 (first entry)
XX Vascular endothelial growth factor-145 (VEGF145).
XX Vascular endothelial growth factor; VEGF145; angiogenic factor;
XX cell proliferation; cardiovascular disease; drug permeation. tumour.
XX Homo sapiens.
XX Key Location/Qualifiers
XX Misc-difference 127 /note="encoded by ACG"
XX W09810071-A1.
XX 12-MAR-1998.
XX 04-SEP-1997; 97WO-US15471.
XX 21-JAN-1997; 97OS-0784551.
XX 06-SEP-1996; 96OS-0025537.
XX (COLL-) COLLATERAL THERAPEUTICS.
XX (TECR) TECHNICAL RES & DEV CO LTD.
XX Keshet E, Neufeld G, Poltorak Z, Vlodavsky I;

XX WPI; 1998-193621/17.
XX N-PSDB; V28396.
XX Vascular endothelial growth factor-145 splice variant - useful as an
XX angiogenic factor for treatment of cardiovascular disease
XX Disclosure; Fig.3; 73pp; English.

XX This represents a vascular endothelial growth factor-145 (VEGF145) which
XX can be used to stimulate vascular cell proliferation. Polynucleotides
XX encoding VEGF145 are useful for treatment of cardiovascular or vascular
XX disease in mammals, especially humans. They are also useful for enhancing
XX drug permeation by tumours. VEGF145 can also be administered to stimulate
XX vascular cell proliferation or to enhance endothelialization of diseased
XX vessels (especially re-endothelialization after angioplasty) in mammals.
XX VEGF145, which binds as weakly as VEGF165 to heparin, binds much better
XX than VEGF165 to the extracellular matrix (ECM). However, unlike VEGF189,
XX VEGF145 is secreted from producer cells and binds efficiently to ECM.
XX This combination of properties render VEGF145 the only known VEGF variant
XX that is secreted from producing cells retaining at the same time ECM
XX binding properties. This makes VEGF145 likely to diffuse towards the
XX target blood vessels, while some of the produced VEGF145 will be retained
XX by ECM components along the path of diffusion. This ECM bound pool will
XX dissociate slowly allowing a longer period of activity. Additionally, the
XX biological activity of VEGF145 is protected against oxidative damage,
XX unlike VEGF forms such as VEGF121 thereby giving it a longer half-life.
SQ Sequence 145 AA;

Query Match 96.4%; Score 133; DB 19; Length 145;
Best Local Similarity 96.2%; Pred. No. 1e-13;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
OY 1 CNDEGLSEVPTRESNITMQIMAKPH 26
DB 61 cndeglecvptresnltmqimikph 86

RESULT 13
Y08279
ID Y08279 standard; Protein; 145 AA.
AC Y08279;
XX 14-JUL-1999 (first entry)
XX Human growth factor protein fragment VEGF-A145.
XX Growth factor; human; dimer; cysteine knot; cellular inclusion body;
XX pharmaceutical.
XX Homo sapiens.
XX DE19748734-A1.
XX 06-MAY-1999.
XX 05-NOV-1997; 97DE-1048734.
XX 05-NOV-1997; 97DE-1048734.
XX (GBFB) GES BIOTECHNOLOGISCHE FORSCHUNG MBH.
XX Erdmann H, Kaerst U, Mueller C, Rinas U, Welch H;
XX WPI; 1999-278785/24.
XX Preparing active growth factor dimers from inclusion bodies in high
XX yield
XX Claim 14; Page 7; 14pp; German.

XX This invention describes the novel preparation of biologically active
 CC dimers of recombinant human growth factors of the cysteine knot family
 CC starting from cellular inclusion bodies. Such dimers are useful in
 CC pharmaceutical compositions and the method provides yields of 31-39.7%,
 CC in examples, compared with about 10% for the conventional method (see
 CC Biochemistry, 28 (1989) 2956). Y08278-Y08301 are human growth factor
 CC protein fragments used in the method of the invention.

XX SQ Sequence 145 AA;

Query Match 96.4%; Score 133; DB 20; Length 145;
 Best Local Similarity 96.2%; Pred. No. 1e-13;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGSEVPTESNTTMOIRKPH 26
 Db 61 cndeglecvtpeesnlmtqmrkph 86

RESULT 14

ID Y69413 standard; Protein: 145 AA.

AC Y69413;

DT 03-JUL-2000 (first entry)

XX Amino acid sequence of vascular endothelial growth factor 145.

XX Human; vascular endothelial growth factor: VEGF 145; angiogenic factor;

XX blood vessel injury; vascular injury; microvascular angiopathy;

XX thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;

XX toxic shock syndrome; venom; hypercoagulable state; platelet activation;

XX platelet aggregation; thrombosis; preclampsia; sepsis; pancreatitis;

XX intravascular coagulation; thrombotic thrombocytopenia purpura;

XX acute renal failure; myocardial infarction; ischemic bowel disease;

XX stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;

XX acute respiratory distress syndrome; pneumonia; pulmonary emboli;

XX birth prematurity disorder; wound; allergy; hypersensitivity;

XX autoimmune disease; organ transplant; focal glomerulosclerosis;

XX amyloidosis.

XX Homo sapiens.

XX WO200013702-A2.

XX 16-MAR-2000.

PF 09-SEP-1999; 99WO-US20480.

XX 09-SEP-1998; 98US-0099694.

PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.

XX (SCIO-) SCIOS INC.

XX Schreiner GF, Johnson RJ;

XX MPI: 2000-256861/22.

DR N-PSDB; 299545.

XX Novel methods and compositions for the prevention and treatment of
 PT microvascular angiopathies by administration of angiogenic factors such
 PT as vascular endothelial growth factor (VEGF)

XX Disclosure; Fig 5; 46pp; English.

XX The present sequence represents native human vascular endothelial growth
 CC factor (VEGF) 145. VEGF is an angiogenic factor. VEGF proteins are used
 CC for the prevention or repair of injury to blood vessels or associated
 CC nonvascular tissues (served by the blood vessels) and for the prevention

CC and repair of vascular injury associated with microvascular angiopathy,
 CC particularly thrombotic microangiopathy. The proteins methods may also
 CC be used for the prevention and treatment of kidney diseases associated
 CC with injury to, or atrophy of, the vasculature of the glomerulus and
 CC interstitium. Conditions which may be treated include haemolytic uremic
 CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,
 CC hypercoagulable states, platelet activation or aggregation, thrombosis,
 CC preclampsia, thrombotic thrombocytopenia purpura, disseminated
 CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,
 CC myocardial infarction, ischemic bowel disease, transient ischemic
 CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung
 CC endothelium injury, acute respiratory distress syndrome, toxic alveolar
 CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,
 CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ
 CC transplants, focal glomerulosclerosis, and amyloidosis.

XX SQ Sequence 145 AA;

Query Match 96.4%; Score 133; DB 21; Length 145;
 Best Local Similarity 96.2%; Pred. No. 1e-13;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGSEVPTESNTTMOIRKPH 26
 Db 61 cndeglecvtpeesnlmtqmrkph 86

RESULT 15

ID Y83034 standard; Protein: 145 AA.

AC Y83034;

DT 04-JUL-2000 (first entry)

XX Human vascular endothelial growth factor (hVEGF145).

XX Vascular endothelial growth factor; human; angiogenesis; VEGF;

XX capillary formation; hypertension; treatment; kidney; CNS; stroke;

XX meningitis; central nervous system; tumour; infection; bone growth;

XX hypoxia; hypercapnia; fibrosis; inflammatory bowel disease;

XX diarrhoea; allografts; cardiac valve.

XX Homo sapiens.

XX WO200013703-A2.

XX 16-MAR-2000.

PF 09-SEP-1999; 99WO-US20481.

XX 09-SEP-1998; 98US-0099694.

PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.

XX (SCIO-) SCIOS INC.

XX Schreiner GF, Johnson RJ;

XX MPI: 2000-256862/22.

DR N-PSDB; 293346.

XX Novel methods for treating hypertension by administering a factor which
 PT increases angiogenesis and/or vascular permeability
 PT Claim 3; Figure 7; 51pp; English.

XX Administering vascular endothelial growth factor (VEGF) can be used
 CC for treating hypertension (especially salt-dependent hypertension)
 CC Administeration of VEGF promotes angiogenesis and/or vascular or
 CC capillary permeability. The method is also useful in treating
 CC disorders related to abnormal transport of solutes across endothelial

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:33:02 ; Search time 63.67 Seconds
(without alignments)
6.845 Million cell updates/sec

Title: US-09-266-543-7
Perfect score: 138
Sequence: 1 CNDGLESVTEESNITMOIMRKP 26

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 16761186 residues
Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 2000000000
Post-processing: Minimum Match 0%
Maximum Match 10%
Listing first 45 summaries

Database : Issued_Patents_AA.*
1: /cgn2_6/ptodata/2/1aa/5A.COMB.pep:*
2: /cgn2_6/ptodata/2/1aa/5B.COMB.pep:*
3: /cgn2_6/ptodata/2/1aa/6.COMB.pep:*
4: /cgn2_6/ptodata/2/1aa/CTUS.COMB.pep:*
5: /cgn2_6/ptodata/2/1aa/Backfile1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match length	ID	Description
1	133	96.4	109 3	US-08-691-794-3
2	133	96.4	121 5	Sequence 3, Appl1
3	133	96.4	121 5	Patent No. 5194596
4	133	96.4	145 3	Sequence 2, Appl1
5	133	96.4	147 3	Sequence 1, Appl1
6	133	96.4	165 5	Sequence 2, Appl1
7	133	96.4	165 5	Patent No. 5194596
8	133	96.4	191 3	Sequence 2, Appl1
9	133	96.4	191 3	Sequence 2, Appl1
10	133	96.4	191 3	Sequence 2, Appl1
11	133	96.4	191 3	Sequence 2, Appl1
12	133	96.4	214 5	Sequence 3, Appl1
13	133	96.4	215 3	Sequence 3, Appl1
14	133	96.4	215 3	Sequence 3, Appl1
15	133	96.4	231 4	Sequence 10, Appl1
16	133	96.4	232 2	Sequence 9, Appl1
17	133	96.4	232 2	Sequence 9, Appl1
18	133	96.4	232 3	Sequence 4, Appl1
19	133	96.4	232 3	Sequence 4, Appl1
20	122	88.4	189 1	Sequence 15, Appl1
21	122	88.4	190 1	Sequence 15, Appl1
22	121	87.7	120 5	Sequence 20, Appl1
23	121	87.7	120 5	Sequence 20, Appl1
24	121	87.7	164 5	Sequence 20, Appl1
25	121	87.7	164 5	Sequence 20, Appl1
26	121	87.7	164 5	Sequence 20, Appl1
27	121	87.7	190 5	Sequence 20, Appl1
28	120	87.0	215 5	Sequence 20, Appl1

29	83	60.1	19 3	US-08-807-992B-24	Sequence 24, Appl1
30	75	54.3	149 2	US-08-469-427A-14	Sequence 14, Appl1
31	75	54.3	149 2	US-08-039-297B-2	Sequence 2, Appl1
32	75	54.3	149 2	US-08-569-063C-21	Sequence 21, Appl1
33	75	54.3	170 2	US-08-039-297B-8	Sequence 8, Appl1
34	67	48.6	188 2	US-08-469-427A-11	Sequence 11, Appl1
35	67	48.6	188 2	US-08-609-443B-11	Sequence 11, Appl1
36	67	48.6	188 2	US-08-569-063C-11	Sequence 11, Appl1
37	67	48.6	207 2	US-08-609-443B-15	Sequence 15, Appl1
38	67	48.6	207 2	US-08-569-063C-15	Sequence 15, Appl1
39	66	47.8	102 1	US-08-469-427A-2	Sequence 2, Appl1
40	66	47.8	102 2	US-08-609-443B-2	Sequence 2, Appl1
41	66	47.8	102 2	US-08-569-063C-2	Sequence 2, Appl1
42	66	47.8	133 1	US-08-469-427A-9	Sequence 9, Appl1
43	66	47.8	133 2	US-08-609-443B-9	Sequence 9, Appl1
44	66	47.8	133 2	US-08-569-063C-9	Sequence 9, Appl1
45	66	47.8	188 1	US-08-469-427A-5	Sequence 5, Appl1

ALIGNMENTS

RESULT 1
US-08-691-794-3
Sequence 3, Application US/08691794
Patent No. 6057428
GENERAL INFORMATION:
APPLICANT: Keyt, Bruce A.
APPLICANT: Nguyen, Francis H.
APPLICANT: Ferreira, Napoleone
APPLICANT: Cunningham, Brian C.
APPLICANT: Wells, James A.
APPLICANT: Li, Bing
TITLE OF INVENTION: Variants of Vascular Endothelial Cell
TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their
NUMBER OF SEQUENCES: 45
CORRESPONDENCE ADDRESS:
ADDRESS: Flehr, Hohbach, Test, Abdliton & Herbert
STREET: Four Embarcadero Center, Suite 3400
CITY: San Francisco
STATE: California
COUNTRY: United States
ZIP: 94111-4187
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/691,794
FILING DATE: 02-AUG-1996
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/002,827
FILING DATE: 25-AUG-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/567,200
FILING DATE: 05-DEC-1995
ATTORNEY/AGENT INFORMATION:
NAME: Dregler, Walter H.
REGISTRATION NUMBER: 24,190
TELEPHONE: (415) 781-1989
TELEFAX: (415) 398-3249
TELECOMMUNICATION INFORMATION:
REFERENCE/DOCKET NUMBER: A-63758/WHD
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 109 amino acids
TYPE: amino acid
STRANDEDNESS: unknown
TOPOLOGY: unknown

MOLECULE TYPE: protein
US-08-691-794-3

Query Match 96.4%; Score 133; DB 3; Length 109;
Best Local Similarity 96.2%; Pred. No. 5e-15;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITMQRKPH 26
DB 61 CNDGLEGCVPTESNITMQRKPH 86

RESULT 2
5194596-19
PATENT NO. 5194596
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
GROWTH FACTOR
NUMBER OF SEQUENCES: 32
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/450,883
FILING DATE: 14-DEC-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 19:
LENGTH: 121
5194596-19

Query Match 96.4%; Score 133; DB 5; Length 121;
Best Local Similarity 96.2%; Pred. No. 5.7e-15;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITMQRKPH 26
DB 61 CNDGLEGCVPTESNITMQRKPH 86

RESULT 3
5219739-20
PATENT NO. 5219739
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
JOHN C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESGF120 AND
HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESGF120 AND HVEGF121
NUMBER OF SEQUENCES: 40
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/559,041
FILING DATE: 27-JUL-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 450,883
FILING DATE: 14-DEC-1989
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 20:
LENGTH: 121
5219739-20

Query Match 96.4%; Score 133; DB 5; Length 121;
Best Local Similarity 96.2%; Pred. No. 5.7e-15;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITMQRKPH 26
DB 61 CNDGLEGCVPTESNITMQRKPH 86

RESULT 3

US-08-784-551C-2
Sequence 2, Application US/08784551C
Patent No. 6013780

GENERAL INFORMATION:
APPLICANT: Gary Neufeld
APPLICANT: Eli Keshet
APPLICANT: Israel Vlodavsky
APPLICANT: Zoya Poltorak
TITLE OF INVENTION: ANGIOGENIC FACTOR AND USE THEREOF
TITLE OF INVENTION: IN TREATING CARDIOVASCULAR DISEASE
NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
ADDRESSEE: Blank, Rome, Comisky & McCauley LLP
STREET: 900 17th Street, N.W.
CITY: Washington, D.C.
STATE: N/A
COUNTRY: U.S.A.
ZIP: 20006

COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5" Diskette, 1.44 Mb
MEDIUM TYPE: Storage
COMPUTER: IBM Compatible
OPERATING SYSTEM: IBM P.C. DOS 5.0
SOFTWARE: FASTSEQ for Windows 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/784,551C
FILING DATE: January 21, 1997
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Cohen, Herbert
REGISTRATION NUMBER: 25,109
REFERENCE/DOCKET NUMBER: 0274.005/P003
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 463-7700
TELEFAX: (202) 463-6915
TELEX:

INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 145 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-784-551C-2

Query Match 96.4%; Score 133; DB 3; Length 145;
Best Local Similarity 96.2%; Pred. No. 7.2e-15;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNITMQRKPH 26
DB 61 CNDGLEGCVPTESNITMQRKPH 86

RESULT 5
US-08-807-992B-1
Sequence 1, Application US/08807992B
Patent No. 6022541
GENERAL INFORMATION:
APPLICANT: Senger, Donald R
APPLICANT: Dvorak, Harold F.
TITLE OF INVENTION: Immunological preparation for concurrent
specific binding to spatially exposed regions of vascular
permeability factor bound in-vivo to a tumor associated blo
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS:
ADDRESSEE: David Prashker, Esq.
STREET: P.O. Box 5387

CITY: Magnolia
STATE: Massachusetts
COUNTRY: USA
ZIP: 01930
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
COMPUTER: IBM PS/1
OPERATING SYSTEM: MS DOS
SOFTWARE: Wordperfect version 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/807,992B
FILING DATE: March 3, 1997
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: David Prashker, Esq.
REGISTRATION NUMBER: 29,693
REFERENCE/DOCKET NUMBER: B5-033
TELECOMMUNICATION INFORMATION:
TELEPHONE: (978) 525-3794
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 147 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-807-992B-1

Query Match 96.4%; Score 133; DB 3; Length 147;
Best Local Similarity 96.2%; Pred. No. 7.3e-15;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNITMQRKPH 26
DB 87 CNDGLESVPTEESNITMQRKPH 112

RESULT 6
5194596-18
PATENT NO. 5194596
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
C. MITCHELL, RICHARD L.
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENOTHELIAL CELL
GROWTH FACTOR
NUMBER OF SEQUENCES: 32
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/450,883
FILING DATE: 14-DEC-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 18
LENGTH: 165
5194596-18

Query Match 96.4%; Score 133; DB 5; Length 165;
Best Local Similarity 96.2%; Pred. No. 8.3e-15;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNITMQRKPH 26
DB 61 CNDGLESVPTEESNITMQRKPH 86

RESULT 7
5219739-19
PATENT NO. 5219739
APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESG120 AND BVESG121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN VASCULAR ENOTHELIAL CELL GROWTH FACTORS, BVESG120 AND BVESG121

NUMBER OF SEQUENCES: 40
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/559,041
FILING DATE: 27-JUL-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 450,883
FILING DATE: 14-DEC-1989
APPLICATION NUMBER: 387,545
FILING DATE: 27-JUL-1989
SEQ ID NO: 19
LENGTH: 165
5219739-19

Query Match 96.4%; Score 133; DB 5; Length 165;
Best Local Similarity 96.2%; Pred. No. 8.3e-15;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNITMQRKPH 26
DB 61 CNDGLESVPTEESNITMQRKPH 86

RESULT 8
US-08-567-200A-2
SEQUENCE 2, Application US/08567200A
PATENT NO. 6020473
GENERAL INFORMATION:
APPLICANT: Key, Bruce A.
APPLICANT: Nguyen, Francis H.
APPLICANT: Ferrara, Napoleone
TITLE OF INVENTION: Variants of Vascular Endothelial Cell
TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their
NUMBER OF SEQUENCES: 42
CORRESPONDENCE ADDRESS:
ADDRESSEE: Flehr, Honbach, Test, Albritton & Herbert
STREET: Four Embarcadero Center, Suite 3400
CITY: San Francisco
STATE: California
COUNTRY: United States
ZIP: 94111-4187
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/567,200A
FILING DATE: 05-DEC-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Dreger, Walter H.
REGISTRATION NUMBER: 24,190
REFERENCE/DOCKET NUMBER: A-62326-1/WHD
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 781-1989
TELEFAX: (415) 398-3249
TELEX: 910 277299
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 191 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-567-200A-2

Query Match 96.4%; Score 133; DB 3; Length 191;
Best Local Similarity 96.2%; Pred. No. 1e-14;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNITMQRKPH 26

Db 87 CNDEGLECVPTESNITMOMIRKPH 112

RESULT 9
US-08-807-992B-2

; Sequence 2, Application US/08807992B
; Patent No. 6022541
; GENERAL INFORMATION:
; APPLICANT: Senger, Donald R
; APPLICANT: Dvorak, Harold F
; TITLE OF INVENTION: Immunological preparation for concurrent
; TITLE OF INVENTION: Specific binding to spatially exposed regions of vascular
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
; NUMBER OF SEQUENCES: 31
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: David Prashker, Esq.
; STREET: P.O. Box 5387
; CITY: Magnolia
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 01930
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 MB storage
; COMPUTER: IBM PS/1
; OPERATING SYSTEM: MS DOS
; SOFTWARE: Wordperfect version 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/807,992B
; FILING DATE: March 3, 1997
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: David Prashker, Esq.
; REGISTRATION NUMBER: 29,693
; REFERENCE/DOCKET NUMBER: BIS-033
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (978) 525-3794
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 191 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; US-08-807-992B-2

Query Match 96.4%; Score 133; DB 3; Length 191;
Best Local Similarity 96.2%; Pred. No. 1e-14; 1; Indels 0; Gaps 0;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLECVPTESNITMOMIRKPH 26
Db 87 CNDEGLECVPTESNITMOMIRKPH 112

RESULT 10
US-08-691-794-2

; Sequence 2, Application US/08691794
; Patent No. 6057428
; GENERAL INFORMATION:
; APPLICANT: Keyt, Bruce A.
; APPLICANT: Nguyen, Francis H.
; APPLICANT: Ferrara, Napoleone
; APPLICANT: Cunningham, Brian C.
; APPLICANT: Wells, James A.
; APPLICANT: Li, Bing
; TITLE OF INVENTION: Variants of Vascular Endothelial Cell
; TITLE OF INVENTION: Growth Factor, Their Uses, and Processes for their
; TITLE OF INVENTION: Production
; NUMBER OF SEQUENCES: 45
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Flehr, Hohbach, Test, Albritton & Herbert

; STREET: Four Embarcadero Center, Suite 3400

; CITY: San Francisco

; STATE: California

; COUNTRY: United States

; ZIP: 94111-4187

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: PatentIn Release #1.0, Version #1.30

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/691,794

; FILING DATE: 02-AUG-1996

; CLASSIFICATION: 435

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: US 60/002,827

; FILING DATE: 25-AUG-1995

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: US 08/567,200

; FILING DATE: 05-DEC-1995

; ATTORNEY/AGENT INFORMATION:

; NAME: Dreger, Walter H.

; REGISTRATION NUMBER: 24,190

; REFERENCE/DOCKET NUMBER: A-63758/WHD

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (415) 781-1989

; TELEFAX: (415) 398-3249

; INFORMATION FOR SEQ ID NO: 2:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 191 amino acids

; TYPE: amino acid

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; US-08-691-794-2

Query Match 96.4%; Score 133; DB 3; Length 191;
Best Local Similarity 96.2%; Pred. No. 1e-14; 1; Indels 0; Gaps 0;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLECVPTESNITMOMIRKPH 26
Db 87 CNDEGLECVPTESNITMOMIRKPH 112

RESULT 11
5332671-4

; Patent No. 5332671
; APPLICANT: FERRARA, NAPOLEONE;LEUNG, DAVID W.H.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR AND DNA ENCODING SAME
; NUMBER OF SEQUENCES: 15
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/389,722
; FILING DATE: 04-AUG-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 369,424
; FILING DATE: 21-JUN-1989
; APPLICATION NUMBER: 351,117
; FILING DATE: 12-MAY-1989
; SEQ ID NO:4:
; LENGTH: 191
; 5332671-4

Query Match 96.4%; Score 133; DB 5; Length 191;
Best Local Similarity 96.2%; Pred. No. 1e-14; 1; Indels 0; Gaps 0;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLECVPTESNITMOMIRKPH 26
Db 87 CNDEGLECVPTESNITMOMIRKPH 112

RESULT 12

5240848-11

PATENT NO. 5240848

APPLICANT: KECK, PAMELA J.; CONNOLLY, DANIEL T.; FEDER, JOSEPH

TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR

PERMEABILITY FACTOR HAVING 189 AMINO ACIDS

NUMBER OF SEQUENCES: 11

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/337,037

FILING DATE: 10-JUL-1989

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 274,061

FILING DATE: 21-NOV-1988

SEQ ID NO: 11

LENGTH: 214

5240848-11

Query Match

Best Local Similarity 96.4%; Score 133; DB 5; Length 214;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNTTMOIMRIKPH 26

DB 87 CNDGLESVPTEESNTTMOIMRIKPH 112

RESULT 13

US-08-807-992B-3

Sequence 3, Application US/08807992B

Patent No. 6022541

GENERAL INFORMATION:

APPLICANT: Senger, Donald R

APPLICANT: Dvorak, Harold F

TITLE OF INVENTION: Immunological preparation for concurrent

TITLE OF INVENTION: spatially binding to spatially exposed regions of vascular

TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood

TITLE OF INVENTION: vessel

NUMBER OF SEQUENCES: 31

CORRESPONDENCE ADDRESS:

ADDRESSEE: David Praschker, Esq.

STREET: P.O. Box 5387

CITY: Magnolia

STATE: Massachusetts

COUNTRY: USA

ZIP: 01930

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage

COMPUTER: IBM PS/1

OPERATING SYSTEM: MS DOS

SOFTWARE: WordPerfect version 5.1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/807,992B

FILING DATE: March 3, 1997

CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:

NAME: David Praschker, Esq.

REGISTRATION NUMBER: 29,693

REFERENCE/DOCKET NUMBER: BIS-033

TELECOMMUNICATION INFORMATION:

TELEPHONE: (978) 525-3794

INFORMATION FOR SEQ ID NO: 3:

SEQUENCE CHARACTERISTICS:

LENGTH: 215 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-807-992B-3

Query Match

96.4%; Score 133; DB 3; Length 215;

Best Local Similarity 96.2%; Pred. No. 1.2e-14;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNTTMOIMRIKPH 26

DB 87 CNDGLESVPTEESNTTMOIMRIKPH 112

RESULT 14

5240848-7

PATENT NO. 5240848

APPLICANT: KECK, PAMELA J.; CONNOLLY, DANIEL T.; FEDER, JOSEPH

TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR

PERMEABILITY FACTOR HAVING 189 AMINO ACIDS

NUMBER OF SEQUENCES: 11

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/337,037

FILING DATE: 10-JUL-1989

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 274,061

FILING DATE: 21-NOV-1988

SEQ ID NO: 7

LENGTH: 215

5240848-7

Query Match

Best Local Similarity 96.4%; Score 133; DB 5; Length 215;

Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNTTMOIMRIKPH 26

DB 87 CNDGLESVPTEESNTTMOIMRIKPH 112

RESULT 15

PCT-US96-09001-10

Sequence 10, Application PC/TUS9609001

GENERAL INFORMATION:

APPLICANT: HU, ET AL.

TITLE OF INVENTION: Human Vascular Endothelial Growth Factor 2

NUMBER OF SEQUENCES: 10

CORRESPONDENCE ADDRESS:

ADDRESSEE: CECCHI, STEWART & OLSTEIN

STREET: 6 BECKER FARM ROAD

CITY: ROSELAND

STATE: NEW JERSEY

COUNTRY: USA

ZIP: 07068

COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5 INCH DISKETTE

COMPUTER: IBM PS/2

OPERATING SYSTEM: MS-DOS

SOFTWARE: WORD PERFECT 5.1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: PCT/US96/09001

FILING DATE:

CLASSIFICATION:

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/465,968

FILING DATE: 6 JUN 95

APPLICATION NUMBER: 08/207,550

FILING DATE: 8 MAR 1994

ATTORNEY/AGENT INFORMATION:

NAME: FERRARO, GREGORY D.

REGISTRATION NUMBER: 36,134

REFERENCE/DOCKET NUMBER: 325800-288

TELECOMMUNICATION INFORMATION:

TELEPHONE: 201-994-1700

TELEFAX: 201-994-1744

INFORMATION FOR SEQ ID NO: 10:

SEQUENCE CHARACTERISTICS:

```

:      LENGTH: 231 AMINO ACIDS
:      TYPE: AMINO ACID
:      STRANDEDNESS:
:      TOPOLOGY: LINEAR
:      MOLECULE TYPE: PROTEIN
PCT-US96-09001-10
    
```

```

Query Match      96.48; Score 133; DB 4; Length 231;
Best Local Similarity 96.28; Pred. No. 1.3e-14;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Caps 0;
    
```

```

OY      1 CNDGLESVPTRESNITMIMRIKPH 26
         ||||||| ||||||| |||||||
Db      86 CNDGLEGCVPTRESNITMIMRIKPH 111
    
```

Search completed: November 9, 2000, 15:33:02
 Job time: 243 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:39 ; Search time 94.87 Seconds
(without alignments)
14.778 Million cell updates/sec

Title: US-09-266-543-6

Perfect score: 237
Sequence: 1 CERRKHLFVQTCCKSCKNMTD.....RCKARQLENERTCRCDDKRR 41

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues

Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :

A_Geneseq_36:*

- 1: /SIDSL/gcgdata/geneseq/geneseq/AA1980.DAT:*
- 2: /SIDSL/gcgdata/geneseq/geneseq/AA1981.DAT:*
- 3: /SIDSL/gcgdata/geneseq/geneseq/AA1982.DAT:*
- 4: /SIDSL/gcgdata/geneseq/geneseq/AA1983.DAT:*
- 5: /SIDSL/gcgdata/geneseq/geneseq/AA1984.DAT:*
- 6: /SIDSL/gcgdata/geneseq/geneseq/AA1985.DAT:*
- 7: /SIDSL/gcgdata/geneseq/geneseq/AA1986.DAT:*
- 8: /SIDSL/gcgdata/geneseq/geneseq/AA1987.DAT:*
- 9: /SIDSL/gcgdata/geneseq/geneseq/AA1988.DAT:*
- 10: /SIDSL/gcgdata/geneseq/geneseq/AA1989.DAT:*
- 11: /SIDSL/gcgdata/geneseq/geneseq/AA1990.DAT:*
- 12: /SIDSL/gcgdata/geneseq/geneseq/AA1991.DAT:*
- 13: /SIDSL/gcgdata/geneseq/geneseq/AA1992.DAT:*
- 14: /SIDSL/gcgdata/geneseq/geneseq/AA1993.DAT:*
- 15: /SIDSL/gcgdata/geneseq/geneseq/AA1994.DAT:*
- 16: /SIDSL/gcgdata/geneseq/geneseq/AA1995.DAT:*
- 17: /SIDSL/gcgdata/geneseq/geneseq/AA1996.DAT:*
- 18: /SIDSL/gcgdata/geneseq/geneseq/AA1997.DAT:*
- 19: /SIDSL/gcgdata/geneseq/geneseq/AA1998.DAT:*
- 20: /SIDSL/gcgdata/geneseq/geneseq/AA1999.DAT:*
- 21: /SIDSL/gcgdata/geneseq/geneseq/AA2000.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	206	86.9	164	12 R10911	Bovine vascular en
2	206	86.9	164	14 R38920	Human VEGF-164. H
3	206	86.9	165	14 R38921	Human VEGF-165. H
4	206	86.9	165	18 W31085	Vascular endotheli
5	206	86.9	165	18 W31086	Vascular endotheli
6	206	86.9	165	18 W31087	Vascular endotheli
7	206	86.9	165	18 W31088	Vascular endotheli
8	206	86.9	165	18 W31089	Vascular endotheli
9	206	86.9	165	18 W31090	Vascular endotheli
10	206	86.9	165	18 W31091	Vascular endotheli
11	206	86.9	165	18 W31092	Vascular endotheli
12	206	86.9	165	18 W31093	Vascular endotheli

13	206	86.9	165	18 W31094	Vascular endotheli
14	206	86.9	165	18 W31095	Vascular endotheli
15	206	86.9	165	18 W31096	Vascular endotheli
16	206	86.9	165	20 Y08280	Human growth facto
17	206	86.9	189	20 Y08281	Human growth facto
18	206	86.9	189	21 Y92005	Human vascular end
19	206	86.9	190	11 R08120	Mammalian glioma-d
20	206	86.9	190	11 R08001	Bovine vascular en
21	206	86.9	190	13 R23347	Rat Vascular Endot
22	206	86.9	190	13 R27350	Sequence of vascul
23	206	86.9	190	13 R27351	Sequence of vascul
24	206	86.9	190	13 R27352	Sequence of vascul
25	206	86.9	190	19 W53639	Vascular endotheli
26	206	86.9	190	19 W53642	Vascular endotheli
27	206	86.9	190	19 W53643	Vascular endotheli
28	206	86.9	190	20 Y33440	Parapox virus VEGF
29	206	86.9	190	20 Y33441	Parapox virus VEGF
30	206	86.9	190	21 Y57028	Vascular endotheli
31	206	86.9	191	11 R08002	Human vascular end
32	206	86.9	191	16 R91076	Human vascular end
33	206	86.9	191	17 W00724	Vascular endotheli
34	206	86.9	191	17 R94002	VEGF165. Homo sap
35	206	86.9	191	18 W38242	Vascular endotheli
36	206	86.9	191	19 W69331	Human VEGF protein
37	206	86.9	191	19 W62525	Amino acid sequenc
38	206	86.9	191	19 W57398	Variant vascular e
39	206	86.9	191	19 W57399	Variant vascular e
40	206	86.9	191	20 Y33439	Parapox virus VEGF
41	206	86.9	191	20 Y07725	Human VEGF protein
42	206	86.9	191	21 Y90403	VEGF encoded by c1
43	206	86.9	191	21 Y69414	Amino acid sequenc
44	206	86.9	191	21 Y83035	Human vascular end
45	206	86.9	192	17 R94039	VEGF165 Cys+4. Ho

ALIGNMENTS

RESULT	1
R10911	R10911 standard. Protein; 164 AA.
XX	XX
AC	R10911;
XX	XX
DT	08-MAY-1991 (first entry)
XX	XX
DE	Bovine vascular endothelial cell growth factor 164.
XX	XX
KW	Bovine vascular endothelial cell growth factor; angiogenesis;
KW	wound healing; bVEGF; PDGF.
XX	XX
OS	Bos taurus.
XX	XX
PN	W09102058-A.
XX	XX
PD	21-FEB-1991.
XX	XX
XX	27-JUL-1990; 30WO-US04227.
PF	14-DEC-1989; 39US-0450883.
XX	XX
PR	27-JUL-1989; 39US-0387545.
XX	XX
PA	(CALB-) CALIF BIOTECH INC.
XX	XX
XX	Fischer ER, Adzhannam, Fiddes JC, Mitchell RL;
PI	WPI; 1991-073534/10.
XX	XX
DR	N-PSDB; Q10791.
XX	XX
PT	DNA encoding vascular endothelial cell growth factor - used for
XX	producing the factor for angiogenesis and re-endothelialisation
PT	in wound healing
XX	XX

PS Disclosure: Fig 6(1-3); 94pp; English.
 XX
 CC Bovine folliculo stellate cells were used in the process of
 CC obtaining cDNA encoding bVEGF (164 amino acids from). The probes
 CC represented in Q10806 and -07 were used in the screening procedures.
 CC See Q10796 for bVEGF120 which is obtained by alternative splicing of
 CC this sequence, i.e. bases 342-473 (amino acids 115-158) are spliced.
 CC The product can be used for angiogenesis and re-endothelialisation
 CC of inner vascular surfaces in wound healing, e.g. treatment of full-
 CC thickness wounds such as dermal ulcers, venous ulcers and diabetic
 CC ulcers, burns. In surgery, in balloon angioplasty and for the in
 CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF
 CC and VEGF can exhibit a mitogenic profile between each factor and
 CC can be used for wound healing or as inhibitors of angiogenesis for
 CC VEGF analogues in which CYS residues are substid. are more stable.
 CC See also Q10791-93; Q10796-97; Q10806-08 and Q11099.
 CC
 XX
 SO Sequence 164 AA;

Query Match 86.9%; Score 206; DB 12; Length 164;
 Best Local Similarity 90.9%; Pred. No. 1.7e-15;
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;
 QY 2 ERRHLEFV--QTCKSCSKNTDSRCKAROLE-NERTCRDCKPRR 41
 DB 121 erkhlfvqdpqtckscskntdsrckarqlelnerckckpr 164

RESULT 2
 R38920
 ID R38920 standard; Protein; 164 AA.
 AC R38920;
 XX
 DT 28-OCT-1993 (first entry)
 XX
 DE Bovine VEGF-164.
 XX
 KW Angiogenesis; wound healing; mitogen; vascular endothelial cells;
 KW Vascular Endothelial Cell Growth Factor; bVEGF-164; bVEGF-120.
 XX
 OS Bos.
 XX
 FH Key
 FT Region 114..158
 FT Location/Qualifiers
 FT /note="encoded by exon which is absent in the
 FT alternatively spliced coding sequence
 FT which encodes bVEGF-120"

US5219739-A.
 PD 15-JUN-1993.
 XX
 PF 27-JUL-1989; 89US-0387545.
 XX
 PR 27-JUL-1989; 89US-0387545.
 PR 14-DEC-1989; 89US-0450883.
 PR 27-JUL-1990; 90US-0559041.
 XX
 PA (SCIO-) SCIOS NOVA INC.
 XX
 PI Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;
 XX
 DR WPI; 1993-205302/25.
 DR P-PSDB; 044259.
 XX
 PT Isolated DNA sequences, expression vectors and transformant cells
 PT used for large scale prodn. of vascular endothelial cell growth
 PT factor, for treating wounds in which neo-vascularisation is
 PT required
 XX

PS Example 4 and Claim 1; Fig 6; 40pp; English.
 XX
 CC The sequence of Q44259 contains an open reading frame corresponding
 CC to the 164 amino acid bovine vascular endothelial cell growth
 CC factor (bVEGF-164, i.e. R38920). Alternative splicing of the
 CC sequence gives a shorter coding sequence which encodes the 120
 CC amino acid bVEGF (see R38916).
 XX
 SO Sequence 164 AA;

Query Match 86.9%; Score 206; DB 14; Length 164;
 Best Local Similarity 90.9%; Pred. No. 1.7e-15;
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;
 QY 2 ERRHLEFV--QTCKSCSKNTDSRCKAROLE-NERTCRDCKPRR 41
 DB 121 erkhlfvqdpqtckscskntdsrckarqlelnerckckpr 164

RESULT 3
 R38921
 ID R38921 standard; Protein; 165 AA.
 AC R38921;
 XX
 DT 28-OCT-1993 (first entry)
 XX
 DE Human VEGF-165.
 XX
 KW Angiogenesis; wound healing; mitogen; vascular endothelial cells;
 KW Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.
 XX
 OS Homo sapiens.
 XX

FH Key
 FT MISC-difference 7 Location/Qualifiers
 FT /note="inserted amino acid relative to bVEGF"
 FT Region 115..159
 FT /note="replaced by Lys in hVEGF-121"
 FT
 PN US5219739-A.
 PD 15-JUN-1993.
 XX
 PF 27-JUL-1989; 89US-0387545.
 XX
 PR 27-JUL-1989; 89US-0387545.
 PR 14-DEC-1989; 89US-0450883.
 PR 27-JUL-1990; 90US-0559041.
 XX
 PA (SCIO-) SCIOS NOVA INC.
 XX
 PI Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;
 XX
 DR WPI; 1993-205302/25.
 DR N-PSDB; 044260.
 XX
 PT Isolated DNA sequences, expression vectors and transformant cells
 PT used for large scale prodn. of vascular endothelial cell growth
 PT factor, for treating wounds in which neo-vascularisation is
 PT required
 XX

Example 7; Fig 7; 40pp; English.
 PS
 XX The sequence of Q44260 contains an open reading frame corresponding
 XX to the 165 amino acid human vascular endothelial cell growth
 XX factor (hVEGF-165, see R38921). Alternative splicing of the
 XX sequence gives a shorter coding sequence which encodes the 121
 XX amino acid hVEGF (see R42607). The full-length coding sequences can
 XX be generated using PCR with human foetal vascular smooth muscle
 XX poly-A+ RNA as template.

Sequence 165 AA;

Query Match 86.9%; Score 206; DB 14; Length 165;
Best Local Similarity 90.9%; Pred. No. 1.7e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

2 ERRKHLFV--QTCKSCNTDSCRAROLE-NERTCRCDKPR 41
Db 122 errkhlfvqdpqtcscnxtsrckarqlelnercckpr 165

RESULT 4

W31085 ID W31085 standard; Protein; 165 AA.

W31085; AC XX

16-JAN-1998 (first entry) DT XX

Vascular endothelial growth factor variant used in drug screening. DE XX

VEGF; vascular endothelial growth factor; variant; mutant; KM XX

substitution; drug screening; kinase domain binding region; KDR; KM XX

FMS-like tyrosine kinase binding region; FLT-1; drug screening; KM XX

testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour; KM XX

neoplasia. OS XX

Homo sapiens. OS XX

Synthetic. OS XX

Key Location/Qualifiers

Misc-difference 63 /note- "wild-type Asp replaced by Ala"

Misc-difference 64 /note- "wild-type Glu replaced by Ala"

Misc-difference 67 /note- "wild-type Glu replaced by Ala"

MO9708313-Al. XX

06-MAR-1997. XX

23-AUG-1996; 96WO-US13621. XX

02-AUG-1996; 96US-0691791. XX

25-AUG-1995; 95US-0002827. XX

05-DEC-1995; 95US-0567200. XX

(GETH) GENENTECH INC. XX

Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH; XX

Wells JA; XX

WPI; 1997-179270/16. XX

Vascular endothelial cell growth factor variant - used to identify XX

candidates having agonistic or antagonistic properties with respect XX

to KDR and/or FLT receptor binding PT

Claim 6; Page -; 130pp; English. XX

W31085-W31096 are vascular endothelial growth factor (VEGF) variants. CC

Especially preferred modifications comprise mutations in the kinase CC

domain binding region (KDR) or the FMS-like tyrosine kinase binding CC

region (FLT-1). All indicated residues are preferably replaced with CC

alanine. The variants may be used in an assay for identifying CC

candidate compositions having agonistic or antagonistic properties CC

with respect to KDR and/or FLT receptor binding, by measuring the CC

effect the candidate has on the binding properties of the variants CC

to KDR and/or FLT-1 receptors. Compositions identified may be CC

useful for treating indications where vasculogenesis or angiogenesis CC

is desired for treatment of an underlying disease state. CC

CC N.B. This sequence is not given in the specification, it was created
CC from a claimed specified mutant of wild-type mature VEGF.

Sequence 165 AA;

Query Match 86.9%; Score 206; DB 18; Length 165;
Best Local Similarity 90.9%; Pred. No. 1.7e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

2 ERRKHLFV--QTCKSCNTDSCRAROLE-NERTCRCDKPR 41
Db 122 errkhlfvqdpqtcscnxtsrckarqlelnercckpr 165

RESULT 5

W31086 ID W31086 standard; Protein; 165 AA.

W31086; AC XX

16-JAN-1998 (first entry) DT XX

Vascular endothelial growth factor variant used in drug screening. DE XX

VEGF; vascular endothelial growth factor; variant; mutant; KM XX

substitution; drug screening; kinase domain binding region; KDR; KM XX

FMS-like tyrosine kinase binding region; FLT-1; drug screening; KM XX

testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour; KM XX

neoplasia. OS XX

Homo sapiens. OS XX

Synthetic. OS XX

Key Location/Qualifiers

Misc-difference 82 /note- "wild-type Arg replaced by Ala"

Misc-difference 84 /note- "wild-type Lys replaced by Ala"

Misc-difference 86 /note- "wild-type His replaced by Ala"

MO9708313-Al. XX

06-MAR-1997. XX

23-AUG-1996; 96WO-US13621. XX

02-AUG-1996; 96US-0691791. XX

25-AUG-1995; 95US-0002827. XX

05-DEC-1995; 95US-0567200. XX

(GETH) GENENTECH INC. XX

Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH; XX

Wells JA; XX

WPI; 1997-179270/16. XX

Vascular endothelial cell growth factor variant - used to identify XX

candidates having agonistic or antagonistic properties with respect XX

to KDR and/or FLT receptor binding PT

Claim 6; Page -; 130pp; English. XX

W31085-W31096 are vascular endothelial growth factor (VEGF) variants. CC

Especially preferred modifications comprise mutations in the kinase CC

domain binding region (KDR) or the FMS-like tyrosine kinase binding CC

region (FLT-1). All indicated residues are preferably replaced with CC

alanine. The variants may be used in an assay for identifying CC

candidate compositions having agonistic or antagonistic properties CC

with respect to KDR and/or FLT receptor binding, by measuring the CC

effect the candidate has on the binding properties of the variants CC

is desired for treatment of an underlying disease state. CC

CC with respect to KDR and/or FLT receptor binding, by measuring the
CC effect the candidate has on the binding properties of the variants
CC to the KDR and/or FLT-1 receptors. Compositions identified may be
CC useful for treating indications where vasculogenesis or angiogenesis
CC is desired for treatment of an underlying disease state.
CC N.B. This sequence is not given in the specification, it was created
XX from a claimed specified mutant of wild-type mature VEGF.

Query Match	86.9%;	Score 206;	DB 18;	Length 165;
Best Local Similarity	90.9%;	Pred. No. 1.7e-15;		

```

01 2 ENNNHVV--QUICKSCKNITDSRCKAROLE-NERTCRODKPRR 41
      |||||
122 erikhlfyadnatckscnrtgdrkardl a1 a2 a3 a4 a5 a6 a7 a8 a9 a10 a11 a12 a13 a14 a15 a16 a17 a18 a19 a20 a21 a22 a23 a24 a25 a26 a27 a28 a29 a30 a31 a32 a33 a34 a35 a36 a37 a38 a39 a40 a41 a42 a43 a44 a45 a46 a47 a48 a49 a50 a51 a52 a53 a54 a55 a56 a57 a58 a59 a60 a61 a62 a63 a64 a65 a66 a67 a68 a69 a70 a71 a72 a73 a74 a75 a76 a77 a78 a79 a80 a81 a82 a83 a84 a85 a86 a87 a88 a89 a90 a91 a92 a93 a94 a95 a96 a97 a98 a99 a100 a101 a102 a103 a104 a105 a106 a107 a108 a109 a110 a111 a112 a113 a114 a115 a116 a117 a118 a119 a120 a121 a122 a123 a124 a125 a126 a127 a128 a129 a130 a131 a132 a133 a134 a135 a136 a137 a138 a139 a140 a141 a142 a143 a144 a145 a146 a147 a148 a149 a150 a151 a152 a153 a154 a155 a156 a157 a158 a159 a160 a161 a162 a163 a164 a165 a166 a167 a168 a169 a170 a171 a172 a173 a174 a175 a176 a177 a178 a179 a180 a181 a182 a183 a184 a185 a186 a187 a188 a189 a190 a191 a192 a193 a194 a195 a196 a197 a198 a199 a200 a201 a202 a203 a204 a205 a206 a207 a208 a209 a210 a211 a212 a213 a214 a215 a216 a217 a218 a219 a220 a221 a222 a223 a224 a225 a226 a227 a228 a229 a230 a231 a232 a233 a234 a235 a236 a237 a238 a239 a240 a241 a242 a243 a244 a245 a246 a247 a248 a249 a250 a251 a252 a253 a254 a255 a256 a257 a258 a259 a260 a261 a262 a263 a264 a265 a266 a267 a268 a269 a270 a271 a272 a273 a274 a275 a276 a277 a278 a279 a280 a281 a282 a283 a284 a285 a286 a287 a288 a289 a290 a291 a292 a293 a294 a295 a296 a297 a298 a299 a300 a301 a302 a303 a304 a305 a306 a307 a308 a309 a310 a311 a312 a313 a314 a315 a316 a317 a318 a319 a320 a321 a322 a323 a324 a325 a326 a327 a328 a329 a330 a331 a332 a333 a334 a335 a336 a337 a338 a339 a340 a341 a342 a343 a344 a345 a346 a347 a348 a349 a350 a351 a352 a353 a354 a355 a356 a357 a358 a359 a360 a361 a362 a363 a364 a365 a366 a367 a368 a369 a370 a371 a372 a373 a374 a375 a376 a377 a378 a379 a380 a381 a382 a383 a384 a385 a386 a387 a388 a389 a390 a391 a392 a393 a394 a395 a396 a397 a398 a399 a400 a401 a402 a403 a404 a405 a406 a407 a408 a409 a410 a411 a412 a413 a414 a415 a416 a417 a418 a419 a420 a421 a422 a423 a424 a425 a426 a427 a428 a429 a430 a431 a432 a433 a434 a435 a436 a437 a438 a439 a440 a441 a442 a443 a444 a445 a446 a447 a448 a449 a450 a451 a452 a453 a454 a455 a456 a457 a458 a459 a460 a461 a462 a463 a464 a465 a466 a467 a468 a469 a470 a471 a472 a473 a474 a475 a476 a477 a478 a479 a480 a481 a482 a483 a484 a485 a486 a487 a488 a489 a490 a491 a492 a493 a494 a495 a496 a497 a498 a499 a500 a501 a502 a503 a504 a505 a506 a507 a508 a509 a510 a511 a512 a513 a514 a515 a516 a517 a518 a519 a520 a521 a522 a523 a524 a525 a526 a527 a528 a529 a530 a531 a532 a533 a534 a535 a536 a537 a538 a539 a540 a541 a542 a543 a544 a545 a546 a547 a548 a549 a550 a551 a552 a553 a554 a555 a556 a557 a558 a559 a560 a561 a562 a563 a564 a565 a566 a567 a568 a569 a570 a571 a572 a573 a574 a575 a576 a577 a578 a579 a580 a581 a582 a583 a584 a585 a586 a587 a588 a589 a590 a591 a592 a593 a594 a595 a596 a597 a598 a599 a600 a601 a602 a603 a604 a605 a606 a607 a608 a609 a610 a611 a612 a613 a614 a615 a616 a617 a618 a619 a620 a621 a622 a623 a624 a625 a626 a627 a628 a629 a630 a631 a632 a633 a634 a635 a636 a637 a638 a639 a640 a641 a642 a643 a644 a645 a646 a647 a648 a649 a650 a651 a652 a653 a654 a655 a656 a657 a658 a659 a660 a661 a662 a663 a664 a665 a666 a667 a668 a669 a670 a671 a672 a673 a674 a675 a676 a677 a678 a679 a680 a681 a682 a683 a684 a685 a686 a687 a688 a689 a690 a691 a692 a693 a694 a695 a696 a697 a698 a699 a700 a701 a702 a703 a704 a705 a706 a707 a708 a709 a710 a711 a712 a713 a714 a715 a716 a717 a718 a719 a720 a721 a722 a723 a724 a725 a726 a727 a728 a729 a730 a731 a732 a733 a734 a735 a736 a737 a738 a739 a740 a741 a742 a743 a744 a745 a746 a747 a748 a749 a750 a751 a752 a753 a754 a755 a756 a757 a758 a759 a760 a761 a762 a763 a764 a765 a766 a767 a768 a769 a770 a771 a772 a773 a774 a775 a776 a777 a778 a779 a780 a781 a782 a783 a784 a785 a786 a787 a788 a789 a790 a791 a792 a793 a794 a795 a796 a797 a798 a799 a800 a801 a802 a803 a804 a805 a806 a807 a808 a809 a810 a811 a812 a813 a814 a815 a816 a817 a818 a819 a820 a821 a822 a823 a824 a825 a826 a827 a828 a829 a830 a831 a832 a833 a834 a835 a836 a837 a838 a839 a840 a841 a842 a843 a844 a845 a846 a847 a848 a849 a850 a851 a852 a853 a854 a855 a856 a857 a858 a859 a860 a861 a862 a863 a864 a865 a866 a867 a868 a869 a870 a871 a872 a873 a874 a875 a876 a877 a878 a879 a880 a881 a882 a883 a884 a885 a886 a887 a888 a889 a890 a891 a892 a893 a894 a895 a896 a897 a898 a899 a900 a901 a902 a903 a904 a905 a906 a907 a908 a909 a910 a911 a912 a913 a914 a915 a916 a917 a918 a919 a920 a921 a922 a923 a924 a925 a926 a927 a928 a929 a930 a931 a932 a933 a934 a935 a936 a937 a938 a939 a940 a941 a942 a943 a944 a945 a946 a947 a948 a949 a950 a951 a952 a953 a954 a955 a956 a957 a958 a959 a960 a961 a962 a963 a964 a965 a966 a967 a968 a969 a970 a971 a972 a973 a974 a975 a976 a977 a978 a979 a980 a981 a982 a983 a984 a985 a986 a987 a988 a989 a990 a991 a992 a993 a994 a995 a996 a997 a998 a999 a1000 a1001 a1002 a1003 a1004 a1005 a1006 a1007 a1008 a1009 a1010 a1011 a1012 a1013 a1014 a1015 a1016 a1017 a1018 a1019 a1020 a1021 a1022 a1023 a1024 a1025 a1026 a1027 a1028 a1029 a1
```

122 erikhlfgdpqtckscskntdsrckarglelmertercdkpprr 165

RESULT	7
W31088	
ID	W31088 standard; Protein; 165 AA.
XX	
W31088;	
AC	

16-JAN-1998 (first entry)

DE Vascular endothelial growth factor variant used in drug screening.
XX
XX
XX

KW VEGF; vascular endothelial growth factor; variant; mutant; substitution; drug screening; kinase domain binding region. rrm-

KW testing; vasculogenesis; angiogenesis; metastasis; drug screening; kinase domain binding region; KDR; FMS-like tyrosine kinase binding region; FLT-1; drug testing; vasculogenesis; angiogenesis; metastasis

les; angiogenesis; metastasis; cancer; tumour
neoplasia.

AA
OS
OS
Homo sapiens.
Synthetic

[illegible]

FH	Key	Location/Qualifiers
Ft	Misc. difference	.46

	/note=	"wild-type Ile replaced by Ala"
Misc-difference:	79	

```

FT      /note= "wild-type Gln replaced by Ala"
FT      MISC-difference: 83
FT      MISC-difference /9

```

```

      /note= "wild-type Ile replaced by Ala"
      Misc-difference 83

```

XX
XX
PN WO9708313-A1.
XX

XX
PD 06-MAR-1997.

23-AUG-1996: 96MO-US13621

02-AUG-1995: 66NS-0691791
PR
XX
23-AUG-1996: 66WO-US13621.
XX

02-AUG-1996; \$6US-0691791.
PR
25-AUG-1995; 95US-0002827.
05-DEC-1996;
PR

05-DEC-1995; 5505-0567200.

PA (GETH¹) GENENTECH INC.
XX

Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
Wells JA;

WPI: 1007-170370/76

WPI; 1997-179270/16.

Vascular endothelial cell growth factor variant - used to identify candidates having agonistic or antagonistic properties with respect to


```

PT      to KDR and/or FLT receptor binding
PS      Claim 18; Page --130pp; English.
XX
XX      W31085-W31096 are vascular endothelial growth factor (VEGF) variants.
CC      Especially preferred modifications comprise mutations in the kinase
CC      domain binding region (KDR) or the FMS-like tyrosine kinase binding
CC      region (FLT-1). All indicated residues are preferably replaced with
CC      alanine. The variants may be used in an assay for identifying
CC      candidate compositions having agonistic or antagonistic properties
CC      with respect to KDR and/or FLT receptor binding, by measuring the
CC      effect the candidate has on the binding properties of the variants
CC      to the KDR and/or FLT-1 receptors. Compositions identified may be
CC      useful for treating indications where vasculogenesis or angiogenesis
CC      is desired for treatment of an underlying disease state.
CC      N.B. This sequence is not given in the specification, it was created
CC      from a claimed specified mutant of wild-type mature VEGF.
XX
SQ      Sequence      165 AA:

Query Match          86.9%; Score 206; DB 18; Length 165;
Best Local Similarity 90.9%; Pred.No.1.7e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2.

Oy      2 ERRKLHV---OTCKSCSKNTDSRCKARLE-NERTCRDQRRR 41
        |||||  |||||||  |||||||  |||||||  |||||||
Db      122 ERKHlFvdpqtckscskntsrckarglelnertcrdckprr 165

RESULT      8
W31089
ID      W31089 standard; Protein; 165 AA.
AC
XX      W31089;
XX
DT      16-JAN-1998 (first entry)
DE
XX      Vascular endothelial growth factor variant used in drug screening.
XX
KW      VEGF: vascular endothelial growth factor; variant; mutant;
KW      substitution; drug screening; kinase domain binding region; KDR;
KM      FMS-like tyrosine kinase binding region; FLT-1; drug screening;
KM      testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
KM      neoplasia.
XX
OS      Homo sapiens.
OS      Synthetic.
XX
FH      Key Location/Qualifiers
FT      Misc-difference 17 /note= "wild-type Phe replaced by Ala"
FT      Misc-difference 43 /note= "wild-type Ile replaced by Ala"
FT      Misc-difference 64 /note= "wild-type Glu replaced by Ala"
FT
XX
PN      WO9708313-A1.
XX
PD      06-MAR-1997.
XX
PF      23-AUG-1996; 96WO-US13621.
XX
PR      02-AUG-1996; 96US-0691791.
PR      25-AUG-1995; 95US-0002827.
PR      05-DEC-1995; 95US-0567200.
XX
PA      (GETH ) GENENTECH INC.
XX
PI      Cunnligham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
PI      Wells JA;
XX
WI      WPI: 1997-179270/16.

```

```

XX Vascular endothelial cell growth factor variant - used to identify
PT candidates having agonistic or antagonistic properties with respect
PT to KDR and/or FLT receptor binding
XX
PS Claim 18; Page -: 130pp; English.
XX
CC W31085-W31096 are vascular endothelial growth factor (VEGF) variants.
CC Especially preferred modifications comprise mutations in the kinase
CC domain binding region (KDR) or the FMS-like tyrosine kinase binding
CC region (FLT-1). All indicated residues are preferably replaced with
CC alanine. The variants may be used in an assay for identifying
CC candidate compositions having agonistic or antagonistic properties
CC with respect to KDR and/or FLT receptor binding, by measuring the
CC effect the candidate has on the binding properties of the variants
CC to the KDR and/or FLT-1 receptors. Compositions identified may be
CC useful for treating indications where vasculogenesis or angiogenesis
CC is desired for treatment of an underlying disease state.
CC N.B. This sequence is not given in the specification, it was created
CC from a claimed specified mutant of wild-type mature VEGF.
XX
SQ Sequence 165 AA:
XX
Query Match 86.9%; Score 206; DB 18; Length 165;
Best Local Similarity 90.9%; Pred.No. 1.7e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2
Oy 2 ERKKHLFV---OTCKSCKNITDSPPKAROLE-NERTCRDCKPRR 41
||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 122 erkhllfvqdgqtckscnkntdsrckarglneirtcrdckpr 165

RESULT 9
W31090
ID W31090 standard; Protein; 165 AA.
XX
AC W31090:
XX
DE 16-JAN-1998 (first entry)
XX
KW Vascular endothelial growth factor variant used in drug screening.
XX
VEGF; vascular endothelial growth factor; variant; mutant;
KW substitution; drug screening; kinase domain binding region; KDR;
KW FMS-like tyrosine kinase binding region; FLT-1; drug screening;
KW testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
KW neoplasia.
XX
OS Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference:17 /note= "wild-type Phe replaced by Ala"
FT Misc-difference:43 /note= "wild-type Ile replaced by Ala"
FT Misc-difference:46 /note= "wild-type Ile replaced by Ala"
FT Misc-difference:64 /note= "wild-type Glu replaced by Ala"
FT Misc-difference:79 /note= "wild-type Glu replaced by Ala"
FT Misc-difference:83 /note= "wild-type Gln replaced by Ala"
FT /note= "wild-type Ile replaced by Ala"
XX
PN WO9708313-A1.
XX
PD -06-MAR-1997.
XX
PF 23-AUG-1996; J6WO-US13621.
XX
PR 02-AUG-1996; J6US-0691791.

```

PR 25-AUG-1995; 95US-0002827.
 PR 05-DEC-1995; 95US-0567200.
 XX
 PA (GETH) GENENTECH INC.
 XX
 PI Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
 PI Wells JA;
 XX
 DR WPI; 1997-179270/16.
 XX
 PT Vascular endothelial cell growth factor variant - used to identify
 PT candidates having agonistic or antagonistic properties with respect
 PT to KDR and/or FLT receptor binding
 XX
 PS Claim 18; Page -; 130pp; English.
 XX
 CC W31085-W31096 are vascular endothelial growth factor (VEGF) variants.
 CC Especially preferred modifications comprise mutations in the kinase
 CC domain binding region (KDR) or the FMS-like tyrosine kinase binding
 CC region (FLT-1). All indicated residues are preferably replaced with
 CC alanine. The variants may be used in an assay for identifying
 CC candidate compositions having agonistic or antagonistic properties
 CC with respect to KDR and/or FLT receptor binding, by measuring the
 CC effect the candidate has on the binding properties of the variants
 CC to the KDR and/or FLT-1 receptors. Compositions identified may be
 CC useful for treating indications where angiogenesis or angiogenesis
 CC is desired for treatment of an underlying disease state.
 CC N.B. This sequence is not given in the specification, it was created
 CC from a claimed specified mutant of wild-type mature VEGF.
 CC
 SO Sequence 165 AA.

Query Match 86.9%; Score 206; DB 18; Length 165;
 Best Local Similarity 90.9%; Pred. No. 1.7e-15;
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV---QTCKSCKNIDSRCKARQLE-NERTCRCDKPRR 41
 Db 122 errkhlvqdpqtkcscnkdsrckarglelnertcrdckpr 165

RESULT 10
 ID W31091 standard; Protein; 165 AA.
 AC W31091;
 XX
 DT 16-JAN-1998 (first entry)
 XX
 DE Vascular endothelial growth factor variant used in drug screening.

VEGF; vascular endothelial growth factor; variant; mutant;
 KW substitution; drug screening; kinase domain binding region; KDR;
 KW FMS-like tyrosine kinase binding region; FLT-1; drug screening;
 KW testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
 KW neoplasia.
 XX
 OS Homo sapiens.
 OS Synthetic.
 XX

Key Location/Qualifiers
 FT MISC-difference 46 /note= "wild-type Ile replaced by Ala"
 FT MISC-difference 64 /note= "wild-type Glu replaced by Ala"
 FT MISC-difference 83 /note= "wild-type Ile replaced by Ala"
 FT /note= "wild-type Ile replaced by Ala"
 XX
 XX
 PN W09708313-A1.
 PD 06-MAR-1997.
 XX

PF 23-AUG-1996; 96WO-US13621.
 XX
 PR 02-AUG-1996; 96US-0691791.
 PR 25-AUG-1995; 95US-0002827.
 PR 05-DEC-1995; 95US-0567200.
 XX
 PA (GETH) GENENTECH INC.
 XX
 PI Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
 PI Wells JA;
 XX
 DR WPI; 1997-179270/16.
 XX
 PT Vascular endothelial cell growth factor variant - used to identify
 PT candidates having agonistic or antagonistic properties with respect
 PT to KDR and/or FLT receptor binding
 XX
 PS Claim 22; Page -; 130pp; English.
 XX
 CC W31085-W31096 are vascular endothelial growth factor (VEGF) variants.
 CC Especially preferred modifications comprise mutations in the kinase
 CC domain binding region (KDR) or the FMS-like tyrosine kinase binding
 CC region (FLT-1). All indicated residues are preferably replaced with
 CC alanine. The variants may be used in an assay for identifying
 CC candidate compositions having agonistic or antagonistic properties
 CC with respect to KDR and/or FLT receptor binding, by measuring the
 CC effect the candidate has on the binding properties of the variants
 CC to the KDR and/or FLT-1 receptors. Compositions identified may be
 CC useful for treating indications where angiogenesis or angiogenesis
 CC is desired for treatment of an underlying disease state.
 CC N.B. This sequence is not given in the specification, it was created
 CC from a claimed specified mutant of wild-type mature VEGF.
 CC
 SO Sequence 165 AA.

Query Match 86.9%; Score 206; DB 18; Length 165;
 Best Local Similarity 90.9%; Pred. No. 1.7e-15;
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV---QTCKSCKNIDSRCKARQLE-NERTCRCDKPRR 41
 Db 122 errkhlvqdpqtkcscnkdsrckarglelnertcrdckpr 165

RESULT 11
 ID W31092 standard; Protein; 165 AA.
 AC W31092;
 XX
 DT 16-JAN-1998 (first entry)
 XX
 DE Vascular endothelial growth factor variant used in drug screening.

VEGF; vascular endothelial growth factor; variant; mutant;
 KW substitution; drug screening; kinase domain binding region; KDR;
 KW FMS-like tyrosine kinase binding region; FLT-1; drug screening;
 KW testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
 KW neoplasia.
 XX
 OS Homo sapiens.
 OS Synthetic.
 XX

Key Location/Qualifiers
 FT MISC-difference 17 /note= "wild-type Phe replaced by Ala"
 FT MISC-difference 43 /note= "wild-type Ile replaced by Ala"
 FT MISC-difference 79 /note= "wild-type Glu replaced by Ala"
 FT /note= "wild-type Glu replaced by Ala"
 XX
 XX
 PN W09708313-A1.

```
XX 06-MAR-1997.
PD Misc-difference 83 /note= "wild-type Glu replaced by Ala"
XX 23-AUG-1996; 96WO-US13621.
XX 02-AUG-1996; 96US-0691791.
XX PR 25-AUG-1995; 95US-0002827.
PR 05-DEC-1995; 95US-0567200.
XX (GETH ) GENENTECH INC.
XX Cunnigham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
PI Wells JA;
XX MPI: 1997-179270/16.
XX Vascular endothelial cell growth factor variant - used to identify
PT candidates having agonistic or antagonistic properties with respect
PR to KDR and/or FLT receptor binding
XX
PS Claim 24; Page -: 130pp; English.
XX W31085-W31096 are vascular endothelial growth factor (VEGF) variants.
CC Especially preferred modifications comprise mutations in the kinase
CC domain binding region (KDR) or the FMS-like tyrosine kinase binding
CC region (FLT-1). All indicated residues are preferably replaced with
CC alanine. The variants may be used in an assay for identifying
CC candidate compositions having agonistic or antagonistic properties
CC with respect to KDR and/or FLT receptor binding, by measuring the
CC effect the candidate has on the binding properties of the variants
CC to the KDR and/or FLT-1 receptors. Compositions identified may be
CC useful for treating indications where vasculogenesis or angiogenesis
CC is desired for treatment of an underlying disease state.
CC N.B. This sequence is not given in the specification, it was created
CC from a claimed specified mutant of wild-type mature VEGF.
XX
SQ Sequence 165 AA;
Query Match 86.9%; Score 206; DB 18; Length 165;
Best Local Similarity 90.9%; Pred. No. 1.7e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;
OY 2 ERRKHLFV---OTCKSCKNTDSRCKAROLE-NERTCRDCKPRR 41
Db 122 erkhlfvqdpqtkcskntdsrckarqlnertrcdkpr 165
RESULT 12
W31093
ID W31093 standard; Protein: 165 AA.
XX W31093;
AC W31093;
DE 16-JAN-1998 (first entry)
XX Vascular endothelial growth factor variant used in drug screening.
XX VEGF; vascular endothelial growth factor; variant; mutant;
KW substitution; drug screening; kinase domain binding region; KDR;
KW FMS-like tyrosine kinase binding region; FLT-1; drug screening;
KW testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
KW neoplasia.
XX Homo sapiens.
OS Synthetic.
XX Key Location/Qualifiers
FH Misc-difference 43 /note= "wild-type Ile replaced by Ala"
FT Misc-difference 46 /note= "wild-type Ile replaced by Ala"
FT Misc-difference 79
```

```
FT Misc-difference 83 /note= "wild-type Glu replaced by Ala"
FT 06-MAR-1997.
XX W09708313-A1.
XX 02-AUG-1996; 96US-0691791.
XX PR 25-AUG-1995; 95US-0002827.
PR 05-DEC-1995; 95US-0567200.
XX (GETH ) GENENTECH INC.
XX Cunnigham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
PI Wells JA;
XX MPI: 1997-179270/16.
XX Vascular endothelial cell growth factor variant - used to identify
PT candidates having agonistic or antagonistic properties with respect
PR to KDR and/or FLT receptor binding
XX
PS Claim 26; Page -: 130pp; English.
XX W31085-W31096 are vascular endothelial growth factor (VEGF) variants.
CC Especially preferred modifications comprise mutations in the kinase
CC domain binding region (KDR) or the FMS-like tyrosine kinase binding
CC region (FLT-1). All indicated residues are preferably replaced with
CC alanine. The variants may be used in an assay for identifying
CC candidate compositions having agonistic or antagonistic properties
CC with respect to KDR and/or FLT receptor binding, by measuring the
CC effect the candidate has on the binding properties of the variants
CC to the KDR and/or FLT-1 receptors. Compositions identified may be
CC useful for treating indications where vasculogenesis or angiogenesis
CC is desired for treatment of an underlying disease state.
CC N.B. This sequence is not given in the specification, it was created
CC from a claimed specified mutant of wild-type mature VEGF.
XX
SQ Sequence 165 AA;
Query Match 86.9%; Score 206; DB 18; Length 165;
Best Local Similarity 90.9%; Pred. No. 1.7e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;
OY 2 ERRKHLFV---OTCKSCKNTDSRCKAROLE-NERTCRDCKPRR 41
Db 122 erkhlfvqdpqtkcskntdsrckarqlnertrcdkpr 165
RESULT 13
W31094
ID W31094 standard; Protein: 165 AA.
XX W31094;
AC W31094;
DE 16-JAN-1998 (first entry)
XX Vascular endothelial growth factor variant used in drug screening.
XX VEGF; vascular endothelial growth factor; variant; mutant;
KW substitution; drug screening; kinase domain binding region; KDR;
KW FMS-like tyrosine kinase binding region; FLT-1; drug screening;
KW testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
KW neoplasia.
XX Homo sapiens.
OS Synthetic.
XX Key Location/Qualifiers
FH Misc-difference 43 /note= "wild-type Ile replaced by Ala"
FT Misc-difference 46 /note= "wild-type Ile replaced by Ala"
FT Misc-difference 79
```

```

FT Misc-difference 17 /note= "wild-type Phe replaced by Ala"
FT Misc-difference 64 /note= "wild-type Glu replaced by Ala"
FT
XX
XX WO9708313-A1.
XX
XX PD 06-MAR-1997.
XX
XX PF 23-AUG-1996; 96WO-US13621.
XX
XX PR 02-AUG-1996; 96US-0691791.
XX 25-AUG-1995; 95US-0002827.
XX 05-DEC-1995; 95US-0567200.
XX
XX PA (GETH ) GENENTECH INC.
XX
XX PI Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
XX Wells JA;
XX
XX DR WPI; 1997-179270/16.
XX
XX PT Vascular endothelial cell growth factor variant - used to identify
XX candidates having agonistic or antagonistic properties with respect
XX to KDR and/or FLT receptor binding
XX
XX PS Claim 28; Page -: 130pp; English.
XX
XX CC W31085-W31096 are vascular endothelial growth factor (VEGF) variants.
XX Especially preferred modifications comprise mutations in the kinase
XX domain binding region (KDR) or the FMS-like tyrosine kinase binding
XX region (FLT-1). All indicated residues are preferably replaced with
XX alanine. The variants may be used in an assay for identifying
XX candidate compositions having agonistic or antagonistic properties
XX with respect to KDR and/or FLT receptor binding, by measuring the
XX effect the candidate has on the binding properties of the variants
XX to the KDR and/or FLT-1 receptors. Compositions identified may be
XX useful for treating indications where vasculogenesis or angiogenesis
XX is desired for treatment of an underlying disease state.
XX N.B. This sequence is not given in the specification, it was created
XX from a claimed specified mutant of wild-type mature VEGF.
XX
XX SQ Sequence 165 AA;

Query Match 86.9%; Score 206; DB 18; Length 165;
Best Local Similarity 90.9%; Pred. No. 1.7e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---QTCKSCKNTDSRCKAROLE-NERTCRCDKPR 41
Db 122 errkhlfvqdgptckscskntdsrckarqlelnertcrckprr 165

RESULT 14
W31095
ID W31095 standard; Protein; 165 AA.
XX
XX AC W31095;
XX
XX DT 16-JAN-1998 (first entry)
XX
XX DE Vascular endothelial growth factor variant used in drug screening.
XX
XX KW VEGF; vascular endothelial growth factor; variant; mutant;
XX substitution; drug screening; kinase domain binding region; KDR;
XX FMS-like tyrosine kinase binding region; FLT-1; drug screening;
XX testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
XX
XX OS Homo sapiens.
XX OS Synthetic.
XX

```

```

FH Key Location/Qualifiers
FT Misc-difference 17 /note= "wild-type Phe replaced by Ala"
FT Misc-difference 46 /note= "wild-type Ile replaced by Ala"
FT
XX
XX FT Misc-difference 64 /note= "wild-type Glu replaced by Ala"
XX
XX FT Misc-difference 83 /note= "wild-type Ile replaced by Ala"
XX
XX PN WO9708313-A1.
XX
XX PD 06-MAR-1997.
XX
XX PF 23-AUG-1996; 96WO-US13621.
XX
XX PR 02-AUG-1996; 96US-0691791.
XX 25-AUG-1995; 95US-0002827.
XX 05-DEC-1995; 95US-0567200.
XX
XX PA (GETH ) GENENTECH INC.
XX
XX PI Cunningham BC, Ferrara N, Keyt B, Li B, Nguyen FH;
XX Wells JA;
XX
XX DR WPI; 1997-179270/16.
XX
XX PT Vascular endothelial cell growth factor variant - used to identify
XX candidates having agonistic or antagonistic properties with respect
XX to KDR and/or FLT receptor binding
XX
XX PS Claim 30; Page -: 130pp; English.
XX
XX CC W31085-W31096 are vascular endothelial growth factor (VEGF) variants.
XX Especially preferred modifications comprise mutations in the kinase
XX domain binding region (KDR) or the FMS-like tyrosine kinase binding
XX region (FLT-1). All indicated residues are preferably replaced with
XX alanine. The variants may be used in an assay for identifying
XX candidate compositions having agonistic or antagonistic properties
XX with respect to KDR and/or FLT receptor binding, by measuring the
XX effect the candidate has on the binding properties of the variants
XX to the KDR and/or FLT-1 receptors. Compositions identified may be
XX useful for treating indications where vasculogenesis or angiogenesis
XX is desired for treatment of an underlying disease state.
XX N.B. This sequence is not given in the specification, it was created
XX from a claimed specified mutant of wild-type mature VEGF.
XX
XX SQ Sequence 165 AA;

Query Match 86.9%; Score 206; DB 18; Length 165;
Best Local Similarity 90.9%; Pred. No. 1.7e-15;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---QTCKSCKNTDSRCKAROLE-NERTCRCDKPR 41
Db 122 errkhlfvqdgptckscskntdsrckarqlelnertcrckprr 165

RESULT 15
W31096
ID W31096 standard; Protein; 165 AA.
XX
XX AC W31096;
XX
XX DT 16-JAN-1998 (first entry)
XX
XX DE Vascular endothelial growth factor variant used in drug screening.
XX
XX KW VEGF; vascular endothelial growth factor; variant; mutant;
XX substitution; drug screening; kinase domain binding region; KDR;
XX FMS-like tyrosine kinase binding region; FLT-1; drug screening;
XX testing; vasculogenesis; angiogenesis; metastasis; cancer; tumour;
XX
XX OS Homo sapiens.
XX OS Synthetic.
XX

```

Query Match	Best Local Similarity	Score	DB	Length
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2	86.9%;	206;	18;	165;
2 ERRKHLFV---QTCCKSCKNTDSRCKARLE-NERCRDCKRRR 41				
122 ERKHLVGPDPQCKSCNLSCKARLENERCRDCKRRR 165				

Search completed: November 9, 2000, 15:30:39
Job time: 104 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:33:02 ; Search time 63.67 Seconds
(without alignments)
10.793 Million cell updates/sec

Title: US-09-266-543-6

Perfect score: 237
Sequence: 1 CERKHLFVQPCCKSCCKNTD.....RCKAROLENERTCRDCKPRR 41

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 16761186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Listing first 45 summaries

Database :

- 1: Issued_Patents_AA:*
- 2: /cgn2_6/ptodata/2/1aa/5A_COMB.pep:*
- 3: /cgn2_6/ptodata/2/1aa/6_COMB.pep:*
- 4: /cgn2_6/ptodata/2/1aa/PCTUS_COMB.pep:*
- 5: /cgn2_6/ptodata/2/1aa/backfilest1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	206	86.9	164	5	5194596-17 Patent No. 5194596
2	206	86.9	164	5	5219739-17 Patent No. 5219739
3	206	86.9	164	5	5219739-18 Patent No. 5219739
4	206	86.9	165	5	5194596-18 Patent No. 5194596
5	206	86.9	165	5	5219739-19 Patent No. 5219739
6	206	86.9	189	1	US-08-469-427A-15 Sequence 15, Appl
7	206	86.9	190	2	US-08-569-063C-20 Sequence 20, Appl
8	206	86.9	190	5	5332671-3 Patent No. 5332671
9	206	86.9	191	3	US-08-567-200A-2 Sequence 2, Appl
10	206	86.9	191	3	US-08-807-992B-2 Sequence 2, Appl
11	206	86.9	191	3	US-08-691-794-2 Sequence 2, Appl
12	206	86.9	191	5	5332671-4 Patent No. 5332671
13	206	86.9	214	5	5240848-11 Patent No. 5240848
14	206	86.9	215	5	5240848-11 Patent No. 5240848
15	206	86.9	215	5	5219739-22 Patent No. 5219739
16	206	86.9	215	5	5240848-7 Patent No. 5240848
17	206	86.9	231	4	PCT-US96-09001-10 Sequence 10, Appl
18	206	86.9	232	2	US-08-999-811-7 Sequence 9, Appl
19	206	86.9	232	2	US-08-824-996-9 Sequence 9, Appl
20	206	86.9	232	3	US-08-807-992B-4 Sequence 7, Appl
21	206	86.9	232	3	US-09-042-105-7 Sequence 7, Appl
22	206	86.9	232	3	US-08-807-992B-29 Sequence 29, Appl
23	206	86.9	232	3	US-08-807-992B-7 Sequence 7, Appl
24	206	86.9	232	3	US-08-807-992B-13 Sequence 13, Appl
25	206	86.9	232	3	US-08-807-992B-16 Sequence 16, Appl
26	206	86.9	232	3	US-08-807-992B-30 Sequence 30, Appl
27	206	86.9	232	3	US-08-469-427A-3 Sequence 3, Appl
28	206	86.9	232	3	US-08-609-443B-3 Sequence 3, Appl

29	85	35.9	55	2	US-08-569-063C-3	Sequence 3, Appl
30	85	35.9	188	1	US-08-469-427A-5	Sequence 5, Appl
31	85	35.9	188	2	US-08-609-443B-5	Sequence 5, Appl
32	85	35.9	188	2	US-08-569-063C-5	Sequence 5, Appl
33	85	35.9	195	1	US-08-469-427A-7	Sequence 7, Appl
34	85	35.9	195	2	US-08-609-443B-7	Sequence 7, Appl
35	85	35.9	188	1	US-08-569-063C-7	Sequence 7, Appl
36	80	33.8	188	2	US-08-469-427A-11	Sequence 11, Appl
37	80	33.8	188	2	US-08-609-443B-11	Sequence 11, Appl
38	80	33.8	188	2	US-08-569-063C-11	Sequence 11, Appl
39	74	31.2	350	2	US-08-999-811-4	Sequence 4, Appl
40	74	31.2	350	2	US-08-824-996-2	Sequence 4, Appl
41	74	31.2	350	3	US-09-042-105-4	Sequence 4, Appl
42	74	31.2	419	3	US-08-999-811-2	Sequence 2, Appl
43	74	31.2	419	3	US-09-042-105-2	Sequence 2, Appl
44	74	31.2	419	3	US-09-042-105-18	Sequence 18, Appl
45	74	31.2	419	4	PCT-US96-09001-2	Sequence 2, Appl

ALIGNMENTS

```

RESULT
1
5194596-17
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C. MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:17:
; LENGTH: 164
5194596-17

```

Query Match 86.9%; Score 206; DB 5; Length 164;
Best Local Similarity 90.9%; Pred. No. 5.7e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERKHLFV--QTKCKSCNTDSCKAROLE-NERTCRDCKPRR 41
||||| ||||||||| |||||||||
Db 121 ERKHLFVQPCCKSCCKNTDSCKAROLENERTCRDCKPRR 164

RESULT 2
5219739-17
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESG120 AND
; HVEG 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESG120 AND HVEG121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989

SEQ ID NO:17:
LENGTH: 164
5219739-17

Query Match 86.9%; Score 206; DB 5; Length 164;

Best Local Similarity 90.9%; Pred. No. 5.7e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---OTCKSCKNTDSRCAROLE-NERTCRCDKPRR 41
Db 121 ERRKHLFVODPOTCKSCKNTDSRCAROLELNERTCRCDKPRR 164

RESULT 3
5219739-18
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGF120 AND
; BVGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGF120 AND BVGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:18:
; LENGTH: 164

Query Match
Best Local Similarity 90.9%; Score 206; DB 5; Length 164;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;
QY 2 ERRKHLFV---OTCKSCKNTDSRCAROLE-NERTCRCDKPRR 41
Db 121 ERRKHLFVODPOTCKSCKNTDSRCAROLELNERTCRCDKPRR 164

RESULT 4
5194596-18
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C. MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:18:
; LENGTH: 165

Query Match
Best Local Similarity 86.9%; Score 206; DB 5; Length 165;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;
QY 2 ERRKHLFV---OTCKSCKNTDSRCAROLE-NERTCRCDKPRR 41
Db 122 ERRKHLFVODPOTCKSCKNTDSRCAROLELNERTCRCDKPRR 165

RESULT 5
5219739-19
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGF120 AND

HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGF120 AND BVGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:19:
; LENGTH: 165
5219739-19

Query Match
Best Local Similarity 90.9%; Score 206; DB 5; Length 165;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRKHLFV---OTCKSCKNTDSRCAROLE-NERTCRCDKPRR 41
Db 122 ERRKHLFVODPOTCKSCKNTDSRCAROLELNERTCRCDKPRR 165

RESULT 6
US-08-469-427A-15
; Sequence 15, Application US/08469427A
; Patent No. 5607918
; GENERAL INFORMATION:
; APPLICANT: Eriksson, Ulf
; APPLICANT: Olofsson, Birgitta
; APPLICANT: Alitalo, Kari
; APPLICANT: Pajusola, Katri
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND
; NUMBER OF SEQUENCES: 17
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Evenson, McKewen, Edwards & Lenahan
; STREET: 1200 G Street, N.W., Suite 700
; CITY: Washington
; STATE: DC
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/469,427A
; FILING DATE: 06-JUN-1995
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/397,651
; FILING DATE: 01-MAR-1995
; ATTORNEY/AGENT INFORMATION:
; NAME: Evans, Joseph D
; REGISTRATION NUMBER: 26,269
; REFERENCE/DOCKET NUMBER: 41979cp2
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (202) 628-8800
; TELEFAX: (202) 628-8844
; INFORMATION FOR SEQ ID NO: 15:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 189 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-469-427A-15

Query Match
86.9%; Score 206; DB 1; Length 189;

Best Local Similarity 90.9%; Pred. No. 6.5e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRHFLV---QTCCKSCKNTDSCKAROLE-NERTCRCDKPRR 41
DB 146 ERRHFLVDPOTCKSCCKNTDSCKAROLELNERTCRCDKPRR 189

RESULT 7
US-08-569-063C-20

; Sequence 20, Application US/08569063C
; Patent No. 5928939

; GENERAL INFORMATION:

; APPLICANT: ERIKSSON, Ulf
; APPLICANT: OLOFSSON, Birgitta

; APPLICANT: ALITALO, Kari
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND

; TITLE OF INVENTION: DNA CODING THEREFOR
; NUMBER OF SEQUENCES: 23

; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Evenson, McKeown, Edwards & Lenahan, P.L.L.C.

; STREET: 1200 G Street, N.W., Suite 700
; CITY: Washington

; STATE: DC
; COUNTRY: USA

; ZIP: 20005

; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Patent Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:

; FILING DATE: 06-DEC-1995
; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: US 08/469,427
; FILING DATE: 06-JUN-1995

; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/397,651

; FILING DATE: 01-MAR-1995
; ATTORNEY/AGENT INFORMATION:

; NAME: EVANS, Joseph D
; REGISTRATION NUMBER: 26,269

; REFERENCE/DOCKET NUMBER: 1064/41979CP3
; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (202) 628-8800
; TELEFAX: (202) 628-8844

; INFORMATION FOR SEQ ID NO: 20:
; SEQUENCE CHARACTERISTICS:

; LENGTH: 190 amino acids
; TYPE: amino acid

; STRANDEDNESS: single
; TOPOLOGY: linear

; MOLECULE TYPE: protein
; US-08-569-063C-20

Query Match 86.9%; Score 206; DB 2; Length 190;
Best Local Similarity 90.9%; Pred. No. 6.6e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRHFLV---QTCCKSCKNTDSCKAROLE-NERTCRCDKPRR 41
DB 147 ERRHFLVDPOTCKSCCKNTDSCKAROLELNERTCRCDKPRR 190

RESULT 8
5332671-3

; Patent No. 5332671
; APPLICANT: FERRARA, NAPOLEONE;LEUNG, DAVID W.H.

; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR AND DNA ENCODING SAME

; NUMBER OF SEQUENCES: 15
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/389,722

; FILING DATE: 04-AUG-1989
; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 369,424
; FILING DATE: 21-JUN-1989

; APPLICATION NUMBER: 351,117
; FILING DATE: 12-MAY-1989

; SEQ ID NO: 3
; LENGTH: 190

5332671-3

Query Match 86.9%; Score 206; DB 5; Length 190;
Best Local Similarity 90.9%; Pred. No. 6.6e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRHFLV---QTCCKSCKNTDSCKAROLE-NERTCRCDKPRR 41
DB 147 ERRHFLVDPOTCKSCCKNTDSCKAROLELNERTCRCDKPRR 190

RESULT 9
US-08-567-200A-2

; Sequence 2, Application US/08567200A
; Patent No. 6020473

; GENERAL INFORMATION:
; APPLICANT: Keyl, Bruce A.

; APPLICANT: Nguyen, Francis H.
; APPLICANT: Ferrara, Napoleone

; TITLE OF INVENTION: Variants of Vascular Endothelial Cell
; TITLE OF INVENTION: Growth Factor, their Uses, and Processes for their

; NUMBER OF SEQUENCES: 42
; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Flehr, Hobbach, Test, Albritton & Herbert
; STREET: Four-Embarradero Center, Suite 3400

; CITY: San Francisco
; STATE: California

; COUNTRY: United States
; ZIP: 94111-4187

; MEDIUM TYPE: Floppy disk
; COMPUTER READABLE FORM:

; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Patent Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/567,200A
; FILING DATE: 05-DEC-1995

; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:

; NAME: Dieger, Walter H.
; REGISTRATION NUMBER: 24,190

; REFERENCE/DOCKET NUMBER: A-62326-1/WHD
; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (415) 781-1989
; TELEFAX: (415) 398-3249

; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:

; LENGTH: 191 amino acids
; TYPE: amino acid

; TOPOLOGY: linear
; MOLECULE TYPE: protein

; US-08-567-200A-2

Query Match 86.9%; Score 206; DB 3; Length 191;
Best Local Similarity 90.9%; Pred. No. 6.6e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRHFLV---QTCCKSCKNTDSCKAROLE-NERTCRCDKPRR 41

Db 148 ERRKHLFVDPQTCCKSCKNTDSRCKAROLELNERTCRDCKPR 191

RESULT 10

US-08-807-992B-2

Sequence 2, Application US/08807992B

Patent No. 6022541

GENERAL INFORMATION:

APPLICANT: Senger, Donald R

APPLICANT: Dvorak, Harold F

TITLE OF INVENTION: Immunological preparation for concurrent

TITLE OF INVENTION: specific binding to spatially exposed regions of vascular

TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood

TITLE OF INVENTION: vessel

NUMBER OF SEQUENCES: 31

CORRESPONDENCE ADDRESS:

ADDRESSEE: David Prashker, Esq.

STREET: P.O. Box 5387

CITY: Magnolia

STATE: Massachusetts

COUNTRY: USA

ZIP: 01930

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.50 inch, 1.40 MB storage

COMPUTER: IBM PS/1

OPERATING SYSTEM: MS DOS

SOFTWARE: WordPerfect version 5.1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/807,992B

FILING DATE: March 3, 1997

CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:

NAME: David Prashker, Esq.

REGISTRATION NUMBER: 29,693

REFERENCE/DOCKET NUMBER: BIS-033

TELECOMMUNICATION INFORMATION:

TELEPHONE: (978) 525-3794

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:

LENGTH: 191 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-807-992B-2

Query Match 86.9%; Score 206; DB 3; Length 191;
Best Local Similarity 90.9%; Pred. No. 6.6e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Db 148 ERRKHLFVDPQTCCKSCKNTDSRCKAROLELNERTCRDCKPR 191

RESULT 11

US-08-691-794-2

Sequence 2, Application US/08691794

Patent No. 6057428

GENERAL INFORMATION:

APPLICANT: Keyt, Bruce A.

APPLICANT: Neuvien, Francis H.

APPLICANT: Ferrara, Napoleon C.

APPLICANT: Cunningham, Brian C.

APPLICANT: Wells, James A.

APPLICANT: Li, Bing

TITLE OF INVENTION: Variants of Vascular Endothelial Cell

TITLE OF INVENTION: Growth Factor, their Uses, and Processes for their

TITLE OF INVENTION: Production

NUMBER OF SEQUENCES: 45

CORRESPONDENCE ADDRESS:

ADDRESSEE: Flehr, Hohnbach, Test, Albritton & Herbert

STREET: Four Embarcadero Center, Suite 3400

CITY: San Francisco

STATE: California

COUNTRY: United States

ZIP: 94111-4187

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/691,794

FILING DATE: 02-AUG-1996

CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 60/002,827

FILING DATE: 25-AUG-1995

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/567,200

FILING DATE: 05-DEC-1995

ATTORNEY/AGENT INFORMATION:

NAME: Dreger, Walter H.

REGISTRATION NUMBER: 24,190

REFERENCE/DOCKET NUMBER: A-63758/WHD

TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 781-1989

TELEFAX: (415) 398-3249

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:

LENGTH: 191 amino acids

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-691-794-2

Query Match 86.9%; Score 206; DB 3; Length 191;
Best Local Similarity 90.9%; Pred. No. 6.6e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Db 148 ERRKHLFVDPQTCCKSCKNTDSRCKAROLELNERTCRDCKPR 191

RESULT 12

5332671-4

Patent No. 5332671

APPLICANT: FERRARA, NAPOLEONE;LEUNG, DAVID W.H.

TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL

GROWTH FACTOR AND DNA ENCODING SAME

NUMBER OF SEQUENCES: 15

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/389,722

FILING DATE: 04-AUG-1989

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 369,424

FILING DATE: 21-JUN-1989

APPLICATION NUMBER: 351,117

FILING DATE: 12-MAY-1989

SEQ ID NO: 4;

LENGTH: 191

5332671-4

Query Match 86.9%; Score 206; DB 5; Length 191;
Best Local Similarity 90.9%; Pred. No. 6.6e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Db 148 ERRKHLFVDPQTCCKSCKNTDSRCKAROLELNERTCRDCKPR 191

RESULT 13
5240848-11
; Patent No. 5240848
; APPLICANT: KECK, PAMELA J.; CONNOLLY, DANIEL T.; FEDER, JOSEPH
; TITLE OF INVENTION: DNA SEQUENCES ENCODING HUMAN VASCULAR
; PERMEABILITY FACTOR HAVING 189 AMINO ACIDS
; NUMBER OF SEQUENCES: 11
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/337,037
; FILING DATE: 10-JUL-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 274,061
; FILING DATE: 21-NOV-1988
; SEQ ID NO:11:
; LENGTH: 214
5240848-11

Query Match 86.9%; Score 206; DB 5; Length 214;
Best Local Similarity 90.9%; Pred. No. 7.4e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERKHLFV---OTCKSCKNITDSRCKAROLE-NERTCRDCKPRR 41
||||| |
DB 171 ERKHLFVODPOTCKSCKNITDSRCKAROLE-NERTCRDCKPRR 214

RESULT 14
US-08-807-992B-3
; Sequence 3, Application us/08807992B
; Patent No. 6022541
; GENERAL INFORMATION:
; APPLICANT: Senger, Donald R
; APPLICANT: Dvorak, Harold F
; TITLE OF INVENTION: Immunological preparation for concurrent
; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
; TITLE OF INVENTION: vessel
; NUMBER OF SEQUENCES: 31
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: David Prashker, Esq.
; STREET: P. O. Box 5387
; CITY: Magnolia
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 01930
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 mb storage
; COMPUTER: IBM PS/1
; OPERATING SYSTEM: MS DOS
; SOFTWARE: Wordperfect version 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/807,992B
; FILING DATE: March 3, 1997
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: David Prashker, Esq.
; REGISTRATION NUMBER: 29,693
; REFERENCE/DOCKET NUMBER: BIS-033
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (978) 525-3794
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 215 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
US-08-807-992B-3

Query Match 86.9%; Score 206; DB 3; Length 215;

Best Local Similarity 90.9%; Pred. No. 7.4e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERKHLFV---OTCKSCKNITDSRCKAROLE-NERTCRDCKPRR 41
||||| |
DB 172 ERKHLFVODPOTCKSCKNITDSRCKAROLE-NERTCRDCKPRR 215

RESULT 15
5219739-22
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVEGF120 AND
; BVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGF120 AND BVGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:22:
; LENGTH: 215
5219739-22

Query Match 86.9%; Score 206; DB 5; Length 215;
Best Local Similarity 90.9%; Pred. No. 7.4e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERKHLFV---OTCKSCKNITDSRCKAROLE-NERTCRDCKPRR 41
||||| |
DB 172 ERKHLFVODPOTCKSCKNITDSRCKAROLE-NERTCRDCKPRR 215

Search completed: November 9, 2000, 15:33:02
Job time: 243 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:38 ; Search time 94.87 Seconds
(without alignments)
7.569 Million cell updates/sec

Title: US-09-266-543-5
Perfect score: 114
Sequence: 1 APTEGEGKSHVTKFMDVYC 21

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues
Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: A.Geneseq.36.*
2: /SIDSL/gcgdata/geneseq/geneseq/AA1980.DAT.*
3: /SIDSL/gcgdata/geneseq/geneseq/AA1981.DAT.*
4: /SIDSL/gcgdata/geneseq/geneseq/AA1982.DAT.*
5: /SIDSL/gcgdata/geneseq/geneseq/AA1983.DAT.*
6: /SIDSL/gcgdata/geneseq/geneseq/AA1984.DAT.*
7: /SIDSL/gcgdata/geneseq/geneseq/AA1985.DAT.*
8: /SIDSL/gcgdata/geneseq/geneseq/AA1986.DAT.*
9: /SIDSL/gcgdata/geneseq/geneseq/AA1987.DAT.*
10: /SIDSL/gcgdata/geneseq/geneseq/AA1988.DAT.*
11: /SIDSL/gcgdata/geneseq/geneseq/AA1989.DAT.*
12: /SIDSL/gcgdata/geneseq/geneseq/AA1990.DAT.*
13: /SIDSL/gcgdata/geneseq/geneseq/AA1991.DAT.*
14: /SIDSL/gcgdata/geneseq/geneseq/AA1992.DAT.*
15: /SIDSL/gcgdata/geneseq/geneseq/AA1993.DAT.*
16: /SIDSL/gcgdata/geneseq/geneseq/AA1994.DAT.*
17: /SIDSL/gcgdata/geneseq/geneseq/AA1995.DAT.*
18: /SIDSL/gcgdata/geneseq/geneseq/AA1996.DAT.*
19: /SIDSL/gcgdata/geneseq/geneseq/AA1997.DAT.*
20: /SIDSL/gcgdata/geneseq/geneseq/AA1998.DAT.*
21: /SIDSL/gcgdata/geneseq/geneseq/AA1999.DAT.*
22: /SIDSL/gcgdata/geneseq/geneseq/AA2000.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	105	92.1	133	17	W03041
2	105	92.1	141	20	W23316
3	105	92.1	190	17	W03038
4	105	92.1	190	17	W03039
5	105	92.1	190	17	W03040
6	105	92.1	190	17	W03042
7	101	88.6	146	13	R23348
8	101	88.6	146	13	R23354
9	101	88.6	146	13	W53640
10	101	88.6	146	21	Y57029
11	101	88.6	190	11	R08120
12	101	88.6	190	13	R23347

13	101	88.6	190	13	R27350	Sequence of vascul
14	101	88.5	190	13	R27351	Sequence of vascul
15	101	88.6	190	13	R27352	Sequence of vascul
16	101	88.6	190	13	W33639	Vascular endotheli
17	101	88.6	190	19	W53642	Vascular endotheli
18	101	88.6	190	19	W53643	Vascular endotheli
19	101	88.6	190	20	Y33441	Parapox virus VEGF
20	101	88.6	190	21	Y57028	Vascular endotheli
21	101	88.6	214	13	R22351	Alternative form o
22	101	88.6	214	13	R27355	Sequence of vascul
23	101	88.6	214	19	W53641	Vascular endotheli
24	101	88.6	214	21	Y57030	VEGFA 214 amino ac
25	85	74.6	190	20	Y33440	Parapox virus VEGF
26	81	71.1	20	14	R38917	N-terminal portion
27	81	71.1	21	11	R07271	Folliculo stellate
28	81	71.1	39	11	R07270	Recombinant-derive
29	81	71.1	120	12	R10916	Bovine vascular en
30	81	71.1	120	14	R38916	Bovine VEGF-120.
31	81	71.1	164	12	R10911	Bovine vascular en
32	81	71.1	164	14	R38920	Bovine VEGF-164.
33	81	71.1	190	11	R08001	Bovine vascular en
34	80	70.2	21	12	R13381	Vascular permeabil
35	80	70.2	25	14	R36681	Guinea pig VPF N-t
36	80	70.2	25	17	R88566	Guinea pig VEGF N-
37	80	70.2	25	18	W32860	Guinea pig vascula
38	80	70.2	25	20	Y42706	Guinea pig VEGF N-
39	80	70.2	25	20	W97202	VEGF peptide used
40	80	70.2	25	20	W89669	Guinea pig VEGF sy
41	80	70.2	25	21	Y81489	Guinea pig VEGF N-
42	80	70.2	25	21	Y81489	Guinea pig VEGF-de
43	80	70.2	25	21	Y67224	Guinea pig vascula
44	80	70.2	36	12	R11665	N-terminal sequenc
45	79	69.3	146	20	Y33438	Parapox virus VEGF

ALIGNMENTS

RESULT 1	W03041	W03041 standard; protein; 133 AA.
ID	W03041	
XX		
AC	W03041;	
XX		
DT	11-FEB-1997 (first entry)	
XX		
DE	Mutant vascular endothelial growth factor (truncated protein).	
XX		
KW	Receptor protein tyrosine kinase; assay; screening; agonist;	
KW	activator; vascular permeability; angiogenesis; tumour therapy;	
KW	wound healing; vascular endothelial growth factor;	
KW	neuroepithelial tyrosine kinase.	
XX		
XX	Mus musculus.	
OS		
XX		
PN	W09620403-AL.	
XX		
PD	04-JUL-1996.	
XX		
PF	22-DEC-1995; 35WO-US16753.	
XX		
PR	23-DEC-1994; 94AU-0000301.	
XX	23-DEC-1994; 34AU-0000300.	
XX		
PA	(LUDW-) LUDWIG INST CANCER RES.	
XX		
-PI	Stacker SA, Wilks AF;	
XX		
DR	WPI; 1996-321945/32.	
XX		
PT	New receptor protein tyrosine kinase assays - used to identify inhibitors of activators which can be used in therapy involving angiogenesis or vascular permeability	

XX Claim 33; Page 52; 78pp; English.
PS
XX
CC Receptor protein tyrosine kinase assays can be used to
CC identify inhibitors of receptor tyrosine kinases which can be
CC utilised for inhibiting vascular permeability or for preventing
CC angiogenesis e.g. in tumour therapy; or the assays can be used to
CC identify activators of receptor tyrosine kinases which can be used
CC to induce vascular permeability or to enhance angiogenic activity,
CC e.g., in wound healing. This mutant vascular endothelial growth factor
CC is a truncated protein. It is a receptor agonist.
SQ Sequence 133 AA;

Query Match 92.1%; Score 105; DB 17; Length 133;
Best Local Similarity 100.0%; Pred. No. 2e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTTEGEQKSHVIRKMDVY 20
|||||
DB 27 apttegeqkshvirkmdvy 46

RESULT 2
Y24316
ID Y24316 standard; Protein; 141 AA.
AC Y24316;

XX 16-SEP-1999 (first entry)
XX Mouse vascular endothelial growth factor 115.
DE Mouse vascular endothelial growth factor; VEGF115.
XX
KW Mouse; vascular endothelial growth factor; VEGF115.
XX
OS Mus sp.

XX JPI169183-A.
XX
PD 29-JUN-1999.

XX 11-DEC-1997; 97JP-0362118.
XX
PR 11-DEC-1997; 97JP-0362118.

XX (AGEN) AGENCY OF IND SCI & TECHNOLOGY.
XX (TOAG) TOA GOSEI CHEM IND LTD.
XX
DR WPI; 1999-422621/36.
DR N-PADB; X88959.

XX Vascular endothelial growth factor - and DNA encoding it
XX
PS Claim 1; Page 8; 16pp; Japanese.
XX

CC The present sequence represents mouse vascular endothelial growth
CC factor designated VEGF115.
XX
SQ Sequence 141 AA;

Query Match 92.1%; Score 105; DB 20; Length 141;
Best Local Similarity 100.0%; Pred. No. 2.2e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTTEGEQKSHVIRKMDVY 20
|||||
DB 27 apttegeqkshvirkmdvy 46

RESULT 3
W03038

ID W03038 standard; Protein; 190 AA.

AC W03038;

DT 10-FEB-1997 (first entry)

DE Mutant vascular endothelial growth factor.

KW Receptor protein tyrosine kinase; assay; screening; agonist;
KW activator; vascular permeability; angiogenesis; tumour therapy;
KW wound healing; vascular endothelial growth factor;
KW neuroepithelial tyrosine kinase.

OS Mus musculus.

PN W09620403-A1.

PD 04-JUL-1996.

PF 22-DEC-1995; 95WO-US16753.

PR 23-DEC-1994; 94AU-0000301.

PR 23-DEC-1994; 94AU-0000300.

PA (LUDW-) LUDWIG INST CANCER RES.

Stacker SA, WILKS AF;

WPI; 1996-321946/32.

PT New receptor protein tyrosine kinase assays - used to identify
PT inhibitors or activators which can be used in therapy involving
PT angiogenesis or vascular permeability

PS Claim 33; Page 49-50; 78pp; English.

CC Receptor protein tyrosine kinase assays can be used to
CC identify inhibitors of receptor tyrosine kinases which can be
CC utilised for inhibiting vascular permeability or for preventing
CC angiogenesis e.g. in tumour therapy; or the assays can be used to
CC identify activators of receptor tyrosine kinases which can be used
CC to induce vascular permeability or to enhance angiogenic activity,
CC e.g., in wound healing. This mutant vascular endothelial growth
CC factor comprises a K73S substitution and was identified in an assay
CC involving the receptor protein neuroepithelial tyrosine kinase
CC (NTR). It is a receptor agonist.

SQ Sequence 190 AA;

Query Match 92.1%; Score 105; DB 17; Length 190;
Best Local Similarity 100.0%; Pred. No. 3e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTTEGEQKSHVIRKMDVY 20
|||||
DB 27 apttegeqkshvirkmdvy 46

RESULT 4
W03039
ID W03039 standard; Protein; 190 AA.

AC W03039;

DT 11-FEB-1997 (first entry)

DE Mutant vascular endothelial growth factor.

KW Receptor protein tyrosine kinase; assay; screening; agonist;
KW activator; vascular permeability; angiogenesis; tumour therapy;
KW wound healing; vascular endothelial growth factor;
KW neuroepithelial tyrosine kinase.

```
XX OS Mus musculus.
XX PN W09620403-A1.
XX PD 04-JUL-1996.
XX PF 22-DEC-1995; 95WO-US16753.
XX PR 23-DEC-1994; 94AU-0000301.
XX PS 23-DEC-1994; 94AU-0000300.
XX PA (LUDW-) LUDWIG INST CANCER RES.
XX PI Stacker SA, Wilks AF.
XX DR WPI; 1996-321946/32.
XX PT New receptor protein tyrosine kinase assays - used to identify
XX PT inhibitors or activators which can be used in therapy involving
XX PT angiogenesis or vascular permeability
XX PS Claim 33; Page 50; 78pp; English.
XX CC Receptor protein tyrosine kinase assays can be used to
XX CC identify inhibitors of receptor tyrosine kinases which can be
XX CC utilised for inhibiting vascular permeability or for preventing
XX CC angiogenesis e.g in tumour therapy; or the assays can be used to
XX CC identify activators of receptor tyrosine kinases which can be used
XX CC to induce vascular permeability or to enhance angiogenic activity,
XX CC e.g., in wound healing. This mutant vascular endothelial growth factor
XX CC comprises an H117V substitution and was identified in an assay
XX CC involving the receptor protein neuroepithelial tyrosine kinase
XX CC (Nrk). It is a receptor agonist.
XX SQ Sequence 190 AA;

Query Match 92.1%; Score 105; DB 17; Length 190;
Best Local Similarity 100.0%; Pred. No. 3e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGOKSHEVIRKFMVDY 20
DB 27 apttegeqkshvirkfmdy 46

RESULT 5
W03040 W03040 standard; Protein: 190 AA.
AC W03040;
AC W03040;
DT 11-FEB-1997 (first entry)
DE Mutant vascular endothelial growth factor.
XX DE
XX KW Receptor protein tyrosine kinase; assay; screening; agonist;
XX KW activator; vascular permeability; angiogenesis; tumour therapy;
XX KW wound healing; vascular endothelial growth factor;
XX KW neuroepithelial tyrosine kinase.
XX OS Mus musculus.
XX OS
XX PN W09620403-A1.
XX PD 04-JUL-1996.
XX PF 22-DEC-1995; 95WO-US16753.
XX PR 23-DEC-1994; 94AU-0000301.
XX PR 23-DEC-1994; 94AU-0000300.
XX
```

```
PA (LUDW-) LUDWIG INST CANCER RES.
XX PI Stacker SA, Wilks AF.
XX DR WPI; 1996-321946/32.
XX PT New receptor protein tyrosine kinase assays - used to identify
XX PT inhibitors or activators which can be used in therapy involving
XX PT angiogenesis or vascular permeability
XX PS Claim 33; Page 51; 78pp; English.
XX CC Receptor protein tyrosine kinase assays can be used to
XX CC identify inhibitors of receptor tyrosine kinases which can be
XX CC utilised for inhibiting vascular permeability or for preventing
XX CC angiogenesis e.g in tumour therapy; or the assays can be used to
XX CC identify activators of receptor tyrosine kinases which can be used
XX CC to induce vascular permeability or to enhance angiogenic activity,
XX CC e.g., in wound healing. This mutant vascular endothelial growth factor
XX CC comprises a G117V substitution and was identified in an assay
XX CC involving the receptor protein neuroepithelial tyrosine kinase
XX CC (Nrk). It is a receptor agonist.
XX SQ Sequence 190 AA;

Query Match 92.1%; Score 105; DB 17; Length 190;
Best Local Similarity 100.0%; Pred. No. 3e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGOKSHEVIRKFMVDY 20
DB 27 apttegeqkshvirkfmdy 46

RESULT 6
W03042 W03042 standard; Protein: 190 AA.
AC W03042;
AC W03042;
DT 11-FEB-1997 (first entry)
DE Mutant vascular endothelial growth factor.
XX DE
XX KW Receptor protein tyrosine kinase; assay; screening; agonist;
XX KW activator; vascular permeability; angiogenesis; tumour therapy;
XX KW wound healing; vascular endothelial growth factor;
XX KW neuroepithelial tyrosine kinase.
XX OS Mus musculus.
XX OS
XX PN W09620403-A1.
XX PD 04-JUL-1996.
XX PF 22-DEC-1995; 95WO-US16753.
XX PR 23-DEC-1994; 94AU-0000301.
XX PR 23-DEC-1994; 94AU-0000300.
XX PA (LUDW-) LUDWIG INST CANCER RES.
XX PI Stacker SA, Wilks AF.
XX DR WPI; 1996-321946/32.
XX PT New receptor protein tyrosine kinase assays - used to identify
XX PT inhibitors or activators which can be used in therapy involving
XX PT angiogenesis or vascular permeability
XX PS Claim 33; Page 52-53; 78pp; English.
XX
```

Receptor protein tyrosine kinase assays can be used to identify inhibitors of receptor tyrosine kinases which can be utilized for inhibiting vascular permeability or for preventing angiogenesis e.g. in tumour therapy; or the assays can be used to identify activators of receptor tyrosine kinases which can be used to induce vascular permeability or to enhance angiogenic activity, e.g. in wound healing. This mutant vascular endothelial growth factor comprises the following substitutions: K109R, P110S, H116G, Q112D, S113R, Q114P and H115S. It was designated VEGF₀ and was identified in an assay involving the receptor protein neuroepithelial tyrosine kinase (Nrk). It is a receptor agonist.

Sequence 190 AA;

Query Match
Best Local Similarity 92.18; Score 105; DB 17; Length 190;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 1 APTTEGQKSHVYKFMNDVY 20
27 apttegeqkshvylkfmndv 46

72bp insertion and encodes a 188 amino acid mature protein (R22351). The deleted region lies between the second base of the Asn140 codon and the third base of the Arg184 codon. The 120 amino acid mature protein has Asn140 converted to Lys140. See also Q23038-Q23059.

Sequence 146 AA;

Query Match
Best Local Similarity 88.68; Score 101; DB 13; Length 146;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Db 1 APTTEGQKSHVYKFMNDVY 20
27 apttegeqkshvylkfmndv 46

RESULT 8
R27354
ID R27354 standard; Protein: 146 AA.

AC R27354;
DT 25-FEB-1993 (first entry)

DE Sequence of vascular endothelial cell growth factor VEGF A
146 amino acid residue subunit.

KW Vascular development; mitogen; blood vessel;
Vascular endothelial growth factor; neovascularisation.

OS Rattus.

PN EP506477-A.

PD 30-SEP-1991.

PF 27-MAR-1992; 92EP-0302750.

PR 28-MAR-1991; 91US-0676436.

PA (MERI) MERCK & CO INC.

PI Bayne ML, Thomas KA;

DR WPI: 1992-325745/40.

DR N-PSDB; Q28953.

Vascular endothelial cell growth factor sub-units - which stimulate and growth.

Disclosure; Fig 4; 61pp; English.

The full length coding region of the A subunit or monomer of VEGF is determined from three sets of overlapping cDNA clones. Degenerate oligo. primers based on the amino acid sequences
Phe-Met-Asp-Val-Tyr-Gln from polypeptide 142 (residues 42-47) and
Cys-Tyr-Asn-Thr-Asp from polypeptide T38 (residues 164-168) were used to PCR amplify the central region of the cDNA for VEGF A chain.
A single band migrating at 420 bp was gel purified, digested with SalI, ligated into pGEM3Zf(+) and sequenced. The nucleotide sequence to amplify the 5' and 3' ends of the cDNA. These 5' and 3' clones are denoted ps-15 and pm3, respectively. In addition to the cDNA coding the 164 amino acid secreted form identified by protein sequencing, two alternatively spliced cDNAs encoding a 146 amino acid and a 214 amino acid forms are cloned and sequenced.

Sequence 146 AA;

Receptor protein tyrosine kinase assays can be used to identify inhibitors of receptor tyrosine kinases which can be utilized for inhibiting vascular permeability or for preventing angiogenesis e.g. in tumour therapy; or the assays can be used to identify activators of receptor tyrosine kinases which can be used to induce vascular permeability or to enhance angiogenic activity, e.g. in wound healing. This mutant vascular endothelial growth factor comprises the following substitutions: K109R, P110S, H116G, Q112D, S113R, Q114P and H115S. It was designated VEGF₀ and was identified in an assay involving the receptor protein neuroepithelial tyrosine kinase (Nrk). It is a receptor agonist.

Sequence 190 AA;

Query Match
Best Local Similarity 92.18; Score 105; DB 17; Length 190;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 1 APTTEGQKSHVYKFMNDVY 20
27 apttegeqkshvylkfmndv 46

RESULT 7
R22348
ID R22348 standard; Protein: 146 AA.

AC R22348;
DT 29-JUL-1992 (first entry)

DE Alternative form of VEGF mature A-subunit with 120 amino acids.

KW Rat glioma cell; GS-9L; conditioned medium; heterodimer; VEGF-IT; homodimer; mitogenesis; vascular repair; blood vessel implant; polymerase chain reaction; alternative splicing.

OS Rattus.

Key
Peptide 1..26
FT /label- signal
FT 27..146
FT /label- VEGF_A-subunit
FT /note- "120 amino acids long"

EP476983-A.
25-MAR-1992.

PF 18-SEP-1991; 91EP-0308489.
XX
PR 21-SEP-1990; 90US-0586640.
PR 21-SEP-1990; 90US-0586638.

PA (MERI) MERCK & CO INC.

PI Bayne ML, Conn GL, Thomas KA;

DR WPI: 1992-098641/13.
DR N-PSDB; Q23039.

Vascular endothelial cell growth factor II - used as coating for artificial blood vessels or to promote tissue repair

Example 9; Page 14 and Fig 4; 38pp; English.

Multiple cDNAs encoding alternative forms of the VEGF A-subunit were amplified using PCR primers as in Q23049 and Q23050. Three sets of clones were identified. Clone #12 encoded the 164 amino acid secreted form of VEGF A-subunit (see R22347). Clone #14 has a 133 bp deletion and thus encodes a 120 amino acid form and Clone #16 has a

Query Match 88.6%; Score 101; DB 13; Length 146;
 Best Local Similarity 90.0%; Pred. No. 1.1e-09;
 Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTTEGEOKSHEVIKFMVDY 20
 |||||
 DB 27 apttegeqkavevkmfmdy 46

RESULT 9

W53640
 ID W53640 standard; Protein; 146 AA.

AC W53640;

DT 30-JUL-1998 (first entry)

DE Vascular endothelial growth factor II A subunit variant.

KW Vascular endothelial cell growth factor; VEGF II; rat; glioma cell;
 mitogenesis; blood vessel growth; artificial blood vessel.

OS Rattus sp.

PN US5726152-A.

PD 10-MAR-1998.

PF 31-AUG-1994; 94US-0299185.

PR 31-AUG-1994; 94US-0299185.

PR 21-SEP-1990; 90US-0586638.

PR 05-JAN-1993; 93US-0000834.

PA (MERI) MERCK & CO INC.

PI Bayne ML, Conn GL, Thomas KA;

DR WPI: 1998-206007/18.

PT Vascular endothelial growth factor proteins - having specified A and
 B sub-units

PS Claim 1; Page -: 46pp; English.

CC The present sequence represents a rat vascular endothelial growth factor
 CC II (VEGF II) A subunit variant with a conversion of Asn 140 to Lys 140,
 CC and the deletion of His 141 to Arg 184 from the wild-type given in
 CC W53639. The present invention describes: (1) a mammalian VEGF II protein
 CC comprising an A subunit from W53639, W53640 or W53641, and a B subunit
 CC from W53638, W53639 or the first 115-135 amino acids of W53638; and (2)
 CC a mammalian VEGF comprising a heterodimer or homodimer of B subunits.
 CC The growth factor is used for promoting vascular development and repair
 CC and for promoting tissue repair.
 CC N.B. The present sequence is not given in the specification but is
 CC derived from Fig 5 as stated in the claim.

XX Sequence 146 AA;

Query Match 88.6%; Score 101; DB 19; Length 146;
 Best Local Similarity 90.0%; Pred. No. 1.1e-09;
 Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTTEGEOKSHEVIKFMVDY 20
 |||||
 DB 27 apttegeqkavevkmfmdy 46

RESULT 10

W57029
 ID Y57029 standard; Protein; 146 AA.

AC Y57029;
 XX 15-FEB-2000 (first entry)

DE VEGFA 146 amino acid residue subunit sequence.

KW VEGF; vascular endothelial growth factor; A subunit; tissue growth;
 vascular development; artificial blood vessel; repair; human.

OS Homo sapiens.

PN US5994300-A.

PD 30-NOV-1999.

PF 20-SEP-1993; 93US-0124259.

PR 28-MAR-1991; 91US-0676436.

PA (MERI) MERCK & CO INC.

PI Thomas KA, Bayne ML;

DR WPI: 2000-038268/03.

DR N-PSDB; 239827.

PT Purified and isolated vascular endothelial cell growth factor C subunit
 for the induction of tissue repair or growth -

PS Disclosure: Fig 3; 58pp; English.

CC This is the amino acid sequence of a 146 amino acid residue A subunit of
 CC vascular endothelial cell growth factor (VEGF). The invention relates to
 CC a purified and isolated VEGF C subunit amino acid sequence Y57025. VEGF
 CC exists in various microheterogeneous forms, and is useful for the
 CC promotion of vascular development and repair. The invention also relates
 CC to human VEGF heterodimers AC or BC and homodimer CC, where A, B and C
 CC are subunit amino acid sequences. The VEGF AC, BC or CC amino acid
 CC sequences can be used in a tissue repairing pharmaceutical composition.
 CC The novel growth factors are useful for the production or coverage of
 CC artificial blood vessels with vascular endothelial cell. They are also
 CC useful for the induction of tissue growth and repair.

XX Sequence 146 AA;

Query Match 88.6%; Score 101; DB 21; Length 146;
 Best Local Similarity 90.0%; Pred. No. 1.1e-09;
 Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTTEGEOKSHEVIKFMVDY 20
 |||||
 DB 27 apttegeqkavevkmfmdy 46

RESULT 11

R08120
 ID R08120 standard; Protein; 190 AA.

AC R08120;

DT 24-FEB-1991 (first entry)

DE Mammalian glioma-derived growth factor (GDGF) gene product.

KW Mitogenesis; wound healing.

OS Rattus rattus.

PN EP399816-A.

PD 28-NOV-1990.


```

XX      Sequence      190 AA;
SQ
Query Match      88.6%; Score 101; DB 13; Length 190;
Best Local Similarity 90.0%; Pred. No. 1.5e-09;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY      1 APTTEGEQKSHVTKFMDVY 20
      |||
      27 apttegeqkshvtkfmdvy 46

RESULT 15
R27352
ID      R27352 standard; Protein; 190 AA.
XX
AC      R27352;
XX
DT      25-FEB-1993 (first entry)
XX
DE      Sequence of vascular endothelial cell growth factor VEGF AB
DE      subunit A.
XX
KM      Vascular development; mitogen; blood vessel;
KM      vascular endothelial growth factor; neovascularisation.
XX
OS      Homo sapiens.
XX
FH      Key
FH      Peptide      Location/Qualifiers
FT      1..26
FT      /label= signal
FT      Modified-site 100
FT      /label= glycosylation site

EP506477-A.
XX
PD      30-SEP-1991.
XX
PF      27-MAR-1992; 92EP-0302750.
XX
PR      28-MAR-1991; 91US-0676436.
XX
PA      (MERI ) MERCK & CO INC.
XX
PI      Bayne ML, Thomas KA;
XX
DR      WPI: 1992-325745/40.
DR      N-PSDB; Q28951.
XX
PT      Vascular endothelial cell growth factor sub-units - which stimulate
PT      vascular endothelial cell growth, used for inducing tissue repair
PT      and growth.
XX
PS      Disclosure; Fig 2; 61pp; English.
XX
XX
CC      GS-9L cells were cultured and the VEGF AB subunits were isolated
CC      and sequenced. The reduced and carboxymethylated protein eluted
CC      as two peaks at approx. 23 and 25 ml that were of approx. equal
CC      area as determined by monitoring absorbance at 210 nm. Samples
CC      of the two protein subunits isolated after reduction and
CC      carboxymethylation were each applied to polybrene-coated glass
CC      fiber filters and their N-terminal sequences were determined.
CC      The peak of absorbance eluting at approx 25 ml (A subunit) yielded
CC      an amino terminal sequence Ala Pro Thr Glu Gly Glu Gln Lys Ala His
CC      Glu Val Val identical to VEGF AA. The peak of absorbance eluting
CC      at approx. 23 ml (B subunit) yielded the N-terminal sequence Ala
CC      Leu Ser Ala Gly Asn Xaa Ser Thr Glu Met Glu Val Val Pro Phe Asn
CC      Glu Val plus a nearly equal amount of a truncated form of the same
CC      sequence missing the first three residues. The missing X residue
CC      corresp. to an Asn in the cloned sequence. The A and sum of the
CC      B chain peptides were recovered in nearly equal amounts supporting
CC      the interpretation that the two peptides combine to form an AB

```

```

CC      heterodimer in VEGF II. The form of VEGF AB mature A subunit in the
CC      heterodimer is the 164 amino acid form. The form of VEGF AB mature B
CC      subunit in the heterodimer is the 135 amino acid form derived from
CC      the 158 full length amino acid form.
XX
SQ      Sequence      190 AA;

```

```

Query Match      88.6%; Score 101; DB 13; Length 190;
Best Local Similarity 90.0%; Pred. No. 1.5e-09;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

```

```

OY      1 APTTEGEQKSHVTKFMDVY 20
      |||
      27 apttegeqkshvtkfmdvy 46

```

```

Search completed: November 9, 2000, 15:30:39
Job time: 104 sec

```


GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:33:01 ; Search time 63.67 Seconds
(without alignments)
5.528 Million cell updates/sec

Title: US-09-266-543-5
Perfect score: 114
Sequence: 1 APTEGEGKSHKFMVYC 21

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 16761186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued Patents, AA: *
1: /cgn2_6/prodata/2/1aa/3A.COMB.pep: *
2: /cgn2_6/prodata/2/1aa/3B.COMB.pep: *
3: /cgn2_6/prodata/2/1aa/6.COMB.pep: *
4: /cgn2_6/prodata/2/1aa/PCITUS.COMB.pep: *
5: /cgn2_6/prodata/2/1aa/backfillseq1.pep: *

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	105	92.1	190	2	US-08-569-063C-20
2	101	88.6	25	3	US-08-807-992B-31
3	89.5	78.5	189	1	US-08-469-427A-15
4	81	71.1	21	5	5194596-11
5	81	71.1	21	5	5219739-11
6	81	71.1	39	5	5332671-14
7	81	71.1	41	5	5194596-21
8	81	71.1	41	5	5219739-26
9	81	71.1	9	5	5194596-9
10	81	71.1	120	5	5219739-9
11	81	71.1	164	5	5194596-17
12	81	71.1	164	5	5219739-17
13	81	71.1	164	5	5219739-18
14	81	71.1	190	5	5332671-3
15	80	70.2	25	1	US-08-327-709-1
16	80	70.2	25	1	US-08-457-229-1
17	80	70.2	25	2	US-08-457-487-1
18	80	70.2	25	2	US-08-464-956-1
19	80	70.2	25	2	US-08-479-733A-30
20	80	70.2	25	2	US-08-350-212-1
21	80	70.2	25	3	US-08-807-992B-17
22	80	70.2	25	3	US-08-807-992B-20
23	80	70.2	25	3	US-08-479-727A-30
24	80	70.2	25	3	US-08-482-369A-30
25	80	70.2	36	5	5240848-1
26	72	63.2	231	4	PCIT-US96-09001-10
27	65.5	57.5	26	1	US-08-327-709-3
28	65.5	57.5	26	1	US-08-327-709-4

29	65.5	57.5	26	1	US-08-457-229-2	Sequence 2, App1
30	65.5	57.5	26	2	US-08-457-487-2	Sequence 2, App1
31	65.5	57.5	26	2	US-08-464-956-3	Sequence 3, App1
32	65.5	57.5	26	2	US-08-464-956-4	Sequence 4, App1
33	65.5	57.5	26	2	US-08-479-733A-31	Sequence 31, App1
34	65.5	57.5	26	2	US-08-350-212-2	Sequence 2, App1
35	65.5	57.5	26	3	US-08-807-992B-5	Sequence 5, App1
36	65.5	57.5	26	3	US-08-807-992B-8	Sequence 8, App1
37	65.5	57.5	26	3	US-08-807-992B-11	Sequence 11, App1
38	65.5	57.5	26	3	US-08-807-992B-14	Sequence 14, App1
39	65.5	57.5	26	3	US-08-807-992B-18	Sequence 18, App1
40	65.5	57.5	26	3	US-08-807-992B-21	Sequence 21, App1
41	65.5	57.5	26	3	US-08-479-727A-31	Sequence 31, App1
42	65.5	57.5	26	3	US-08-482-369A-31	Sequence 31, App1
43	65.5	57.5	37	5	5240848-10	Patent No. 5240848
44	65.5	57.5	109	3	US-08-691-794-3	Sequence 3, App1
45	65.5	57.5	121	5	5194596-19	Patent No. 5194596

ALIGNMENTS

```

RESULT 1
US-08-569-063C-20
; Sequence 20, Application US/08569063C
; Patent No. 5928939
;
GENERAL INFORMATION:
; APPLICANT: ERIKSSON, Ulf
; APPLICANT: OLOFSSON, Birgitta
; APPLICANT: ALITALO, Kari
; APPLICANT: PAVUSOLA, Katri
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND
; TITLE OF INVENTION: DNA CODING THEREFOR
; NUMBER OF SEQUENCES: 23
; CORRESPONDENCE ADDRESSES:
; ADDRESSEE: Evenson, McKeown, Edwards & Lenahan, P.L.L.C.
; STREET: 1200 G Street, N.W., Suite 700
; CITY: Washington
; STATE: DC
; COUNTRY: USA
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/569,063C
; FILING DATE: 06-DEC-1995
; PRIORITY APPLICATION DATA:
; APPLICATION NUMBER: US 08/469,427
; FILING DATE: 06-JUN-1995
; PRIORITY APPLICATION DATA:
; APPLICATION NUMBER: US 08/397,651
; FILING DATE: 01-MAR-1995
; ATTORNEY/AGENT INFORMATION:
; NAME: EVANS, Joseph D
; REGISTRATION NUMBER: 26,269
; REFERENCE/DOCKET NUMBER: 1064/41979CP3
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (202) 628-8800
; TELEFAX: (202) 628-8844
; INFORMATION FOR SEQ ID NO: 20:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 190 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; US-08-569-063C-20

```

Query Match 92.1%; Score 105; DB 2; Length 190;

Best Local Similarity 100.0%; Pred. No. 1.4e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVYKFMVDY 20
|||||
Db 27 APTTEGQKSHVYKFMVDY 46

RESULT 2

US-08-807-992B-31
; Sequence 31, Application US/08807992B
; Patent No. 6022541
; GENERAL INFORMATION:
; APPLICANT: Senger, Donald R
; APPLICANT: Dvorak, Harold F
; TITLE OF INVENTION: Immunological preparation for concurrent
; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
; TITLE OF INVENTION: vessel
; NUMBER OF SEQUENCES: 31
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: David Prashker, Esq.
; STREET: P. O. Box 5387
; CITY: Magnolia
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 01930
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
; OPERATING SYSTEM: MS DOS
; SOFTWARE: Wordperfect version 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/807,992B
; FILING DATE: March 3, 1997
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: David Prashker, Esq.
; REGISTRATION NUMBER: 29,693
; REFERENCE/DOCKET NUMBER: BIS-033
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (978) 525-3794
; INFORMATION FOR SEQ ID NO: 31:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; FRAGMENT TYPE: N-terminal
US-08-807-992B-31

Query Match 88.6%; Score 101; DB 3; Length 25;
Best Local Similarity 90.0%; Pred. No. 6.4e-11;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVYKFMVDY 20
|||||
Db 1 APTTEGQKSHVYKFMVDY 20

RESULT 3

US-08-469-427A-15
; Sequence 15, Application US/08469427A
; Patent No. 5607918
; GENERAL INFORMATION:
; APPLICANT: Eriksson, Ulf
; APPLICANT: Olofsson, Birgitta
; APPLICANT: Allitalo, Kari
; APPLICANT: Rafusola, Katri
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND
; TITLE OF INVENTION: DNA CODING THEREFOR

NUMBER OF SEQUENCES: 17

CORRESPONDENCE ADDRESS:

ADDRESSEE: Eyenson, Mckeown, Edwards & Lenahan

STREET: 1200 G Street, N.W., Suite 700

CITY: Washington

STATE: DC

ZIP: 20005

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/469,427A

FILING DATE: 06-JUN-1995

CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/397,651

FILING DATE: 01-MAR-1995

ATTORNEY/AGENT INFORMATION:

NAME: Evans, Joseph D

REGISTRATION NUMBER: 26,269

REFERENCE/DOCKET NUMBER: 41979CP2

TELECOMMUNICATION INFORMATION:

TELEPHONE: (202) 628-8800

TELEFAX: (202) 628-8844

INFORMATION FOR SEQ ID NO: 15:

SEQUENCE CHARACTERISTICS:

LENGTH: 189 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-469-427A-15

Query Match 78.5%; Score 89.5; DB 1; Length 189;
Best Local Similarity 95.0%; Pred. No. 6.1e-08;
Matches 19; Conservative 0; Mismatches 0; Indels 1; Gaps 1;

QY 1 APTTEGQKSHVYKFMVDY 20
|||||
Db 27 APTTEGQKSHVYKFMVDY 45

RESULT 4

5194596-11
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDES, JOHN
; C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 11:
; LENGTH: 21
5194596-11

Query Match 71.1%; Score 81; DB 5; Length 21;
Best Local Similarity 75.0%; Pred. No. 1.4e-07;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVYKFMVDY 20
|||
Db 2 APMAEGQKSHVYKFMVDY 21

RESULT 5
5219739-11
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND
; BVGEF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND BVGEF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:11:
; LENGTH: 21
5219739-11

Query Match 71.1%; Score 81; DB 5; Length 21;
Best Local Similarity 75.0%; Pred. No. 1.4e-07;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVYKFMVY 20
DB 2 APMAEGQKPHVYKFMVY 21

RESULT 6
5332671-14
; Patent No. 5332671
; APPLICANT: FERRARA, NAPOLEONE; LEUNG, DAVID W.H.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR AND DNA ENCODING SAME
; NUMBER OF SEQUENCES: 15
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/389,722
; FILING DATE: 04-AUG-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 369,424
; FILING DATE: 21-JUN-1989
; APPLICATION NUMBER: 351,117
; FILING DATE: 12-MAY-1989
; SEQ ID NO:14:
; LENGTH: 39
5332671-14

Query Match 71.1%; Score 81; DB 5; Length 39;
Best Local Similarity 75.0%; Pred. No. 2.8e-07;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVYKFMVY 20
DB 1 APMAEGQKPHVYKFMVY 20

RESULT 7
5194596-21
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
5194596-21

; FILING DATE: 27-JUL-1989
; SEQ ID NO:21:
; LENGTH: 41
5194596-21

Query Match 71.1%; Score 81; DB 5; Length 41;
Best Local Similarity 75.0%; Pred. No. 3e-07;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVYKFMVY 20
DB 1 APMAEGQKPHVYKFMVY 20

RESULT 8
5219739-26
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND
; BVGEF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND BVGEF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:26:
; LENGTH: 41
5219739-26

Query Match 71.1%; Score 81; DB 5; Length 41;
Best Local Similarity 75.0%; Pred. No. 3e-07;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVYKFMVY 20
DB 1 APMAEGQKPHVYKFMVY 20

RESULT 9
5194596-9
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:9:
; LENGTH: 120
5194596-9

Query Match 71.1%; Score 81; DB 5; Length 120;
Best Local Similarity 75.0%; Pred. No. 1e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVYKFMVY 20
DB 1 APMAEGQKPHVYKFMVY 20

RESULT 10
5219739-9
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESG120 AND
; HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESG120 AND HVEGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559, 041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450, 883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387, 545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 9:
; LENGTH: 120
5219739-9

Query Match 71.1%; Score 81; DB 5; Length 120;
Best Local Similarity 75.0%; Pred. No. 1e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVTKFMDYV 20
DB 1 APMAEGGQKPHVVKFMDYV 20

RESULT 11
5194596-17
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450, 883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387, 545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 17:
; LENGTH: 164
5194596-17

Query Match 71.1%; Score 81; DB 5; Length 164;
Best Local Similarity 75.0%; Pred. No. 1.5e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVTKFMDYV 20
DB 1 APMAEGGQKPHVVKFMDYV 20

RESULT 12
5219739-17
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESG120 AND
; HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESG120 AND HVEGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559, 041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 450, 883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387, 545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 17:
; LENGTH: 164
5219739-17

Query Match 71.1%; Score 81; DB 5; Length 164;
Best Local Similarity 75.0%; Pred. No. 1.5e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVTKFMDYV 20
DB 1 APMAEGGQKPHVVKFMDYV 20

RESULT 13
5219739-18
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESG120 AND
; HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESG120 AND HVEGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559, 041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450, 883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387, 545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 18:
; LENGTH: 164
5219739-18

Query Match 71.1%; Score 81; DB 5; Length 164;
Best Local Similarity 75.0%; Pred. No. 1.5e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 APTTEGQKSHVTKFMDYV 20
DB 1 APMAEGGQKPHVVKFMDYV 20

RESULT 14
5332671-3
; Patent No. 5332671
; APPLICANT: FERRARA, NAPOLEONE; LEUNG, DAVID W.H.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR AND DNA ENCODING SAME
; NUMBER OF SEQUENCES: 15
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/389, 722
; FILING DATE: 04-AUG-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 369, 424
; FILING DATE: 21-JUN-1989
; APPLICATION NUMBER: 351, 117
; FILING DATE: 12-MAY-1989
; SEQ ID NO: 3:
; LENGTH: 190
5332671-3

Query Match 71.1%; Score 81; DB 5; Length 190;
Best Local Similarity 75.0%; Pred. No. 1.7e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

```
QY 1 APTTEGEQKSHEVIKMDVY 20
    || || || || || || ||
Db 27 APMAEGGQKRPHEVVKEMDVY 46
```

; Sequence 1, Application US/08327709
; Patent No. 5659013

```

; GENERAL INFORMATION:
; APPLICANT: Donald R. Senger and Harold F.
; APPLICANT: Dvorak
;

```

;	TITLE OF INVENTION:	VASCULAR PERMEABILITY FACTOR
;	TITLE OF INVENTION:	TARGETED COMPOUNDS
;	NUMBER OF SENTENCES:	4

```

; NUMBER OF SEQUENCES: 4
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Fish & Richardson

```

```

; STREET: 225 Franklin
; CITY: Boston
; STATE: Massachusetts

```

COUNTRY: U.S.A.
ZIP: 02110-2804

```

; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5" Diskette, 1.44 Mb
; COMPUTER: IBM PS/2 Model 502 or 55SX

```

```

; OPERATING SYSTEM: IBM P.C. DOS (Version 3.30)
; SOFTWARE: WordPerfect (Version 5.0)
; CURRENT APPLICATION DATA.

```

CONSENT TO EXECUTION STATEMENT
APPLICATION NUMBER: US/08/327,709
FILING DATE: 01/22/2009

```

; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 07/779,384

```

FILING DATE: October 18, 1991
ATTORNEY/AGENT INFORMATION:
NAME: Clark Paul W

NAME: CLARK, PAUL J.
REGISTRATION NUMBER: 30,162
REFERENCE/DOCKET NUMBER: 01948/024001

TELECOMMUNICATION INFORMATION
TELEPHONE: (617) 542-5077
TELEFAX: (617) 542-8906

TELEX: 200154
INFORMATION FOR SEQ ID NO: 1

```

; SEQUENCE CHARACTERISTICS
; LENGTH: 25
; TYPE: amino acid

```

TOPLOGY: linear
US-08-327-709-1

Query match	10.4%	Score 80;	DB 1;	Length 25;
Best Local Similarity	75.0%;	Pred. No. 2.5e-07;		
Matches 15; Conservative	1;	Mismatches 4;	Indels 0;	Gaps 0

```
QY 1 APTTEGEQKSHEVIKMDVY 20
    || |||| |:|||||
Db 1 APMAEGEQKPREVVKEMDVY 20
```

Search completed: November 9, 2000, 15:33:02
Job time: 243 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 Comugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:33:01 ; Search time 63.67 Seconds
(without alignments)
5.265 Million cell updates/sec

Title: US-09-266-543-4

Sequence: 1 CECRPRKDRTPKCDKPRR 20

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 16761186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents, AA:*

- 1: /cgn2_6/ptodata/2/1aa/5A.COMB.pep:*
- 2: /cgn2_6/ptodata/2/1aa/5B.COMB.pep:*
- 3: /cgn2_6/ptodata/2/1aa/6.COMB.pep:*
- 4: /cgn2_6/ptodata/2/1aa/PTOTUS.COMB.pep:*
- 5: /cgn2_6/ptodata/2/1aa/backfillseq1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	104	86.7	121	5194596-19	Patent No. 5194596
2	104	86.7	121	5219739-20	Patent No. 5219739
3	104	86.7	147	US-08-807-992B-1	Sequence 1, Appl1
4	101	84.2	120	5194596-9	Patent No. 5194596
5	101	84.2	120	5219739-9	Patent No. 5219739
6	85	70.8	189	US-08-469-427A-15	Sequence 15, Appl1
7	85	70.8	190	US-08-569-063C-20	Sequence 20, Appl1
8	82	68.3	145	US-08-784-551C-2	Sequence 2, Appl1
9	70	58.3	149	US-08-469-427A-14	Sequence 14, Appl1
10	70	58.3	149	US-08-039-297B-2	Sequence 21, Appl1
11	70	58.3	149	US-08-569-063C-21	Sequence 21, Appl1
12	69	57.5	165	5194596-18	Patent No. 5194596
13	69	57.5	165	5219739-19	Patent No. 5219739
14	69	57.5	191	US-08-567-200A-2	Sequence 2, Appl1
15	69	57.5	191	US-08-807-992B-2	Sequence 2, Appl1
16	69	57.5	191	US-08-691-794-2	Sequence 2, Appl1
17	69	57.5	191	5332671-4	Patent No. 5332671
18	67	55.8	14	US-08-807-992B-9	Sequence 9, Appl1
19	67	55.8	18	US-08-327-709-2	Sequence 2, Appl1
20	67	55.8	18	US-08-464-956-2	Sequence 2, Appl1
21	67	55.8	18	US-08-807-992B-6	Sequence 6, Appl1
22	67	55.8	18	US-08-807-992B-15	Sequence 15, Appl1
23	67	55.8	18	US-08-807-992B-26	Sequence 26, Appl1
24	67	55.8	214	5240848-11	Patent No. 5240848
25	67	55.8	215	US-08-807-992B-3	Sequence 3, Appl1
26	67	55.8	215	5219739-22	Patent No. 5219739
27	67	55.8	215	5240848-7	Patent No. 5240848
28	67	55.8	231	PCR-US96-09001-10	Sequence 10, Appl1

29	67	55.8	232	2	US-08-999-811-7	Sequence 7, Appl1
30	67	55.8	232	2	US-08-824-996-9	Sequence 9, Appl1
31	67	55.8	232	3	US-08-807-992B-4	Sequence 4, Appl1
32	67	55.8	232	3	US-09-042-105-7	Sequence 7, Appl1
33	66	55.0	164	5	5194596-17	Patent No. 5194596
34	66	55.0	164	5	5219739-17	Patent No. 5219739
35	66	55.0	164	5	5219739-18	Patent No. 5219739
36	66	55.0	190	5	5332671-3	Patent No. 5332671
37	62	51.7	14	3	US-08-807-992B-12	Sequence 12, Appl1
38	60	50.0	18	3	US-08-807-992B-19	Sequence 19, Appl1
39	58	48.3	12	3	US-08-742-243-3	Sequence 3, Appl1
40	58	48.3	12	3	US-08-742-243-66	Sequence 66, Appl1
41	57	47.5	170	2	US-08-039-297B-8	Sequence 8, Appl1
42	56	46.7	12	3	US-08-742-243-65	Sequence 65, Appl1
43	53	44.2	12	3	US-08-742-243-67	Sequence 67, Appl1
44	53	44.2	207	2	US-08-609-443B-15	Sequence 15, Appl1
45	53	44.2	207	2	US-08-569-063C-15	Sequence 15, Appl1

ALIGNMENTS

RESULT 1
5194596-19
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C. MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:19:
; LENGTH: 121
5194596-19

Query Match 86.7%; Score 104; DB 5; Length 121;
Best local Similarity 85.0%; Pred. No. 1.7e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPRKDRTPKCDKPRR 20
||||||| : |||||
Db 102 CECRPRKDRTPKCDKPRR 121
RESULT 2
5219739-20
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVEGF120 AND HVEGF121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; BVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS; BVEGF120 AND HVEGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:20:
; LENGTH: 121
5219739-20
Query Match 86.7%; Score 104; DB 5; Length 121;

Best Local Similarity 85.0%; Pred. No. 1.7e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20
||||||| : |||||
Db 102 CECRPKDKRAQEKCDKPRR 121

RESULT 3

US-08-807-992B-1
; Sequence 1, Application US/08807992B
; Patent No. 6022541
; GENERAL INFORMATION:
; APPLICANT: Senger, Donald R
; APPLICANT: Dworatz, Harold F
; TITLE OF INVENTION: Immunological preparation for concurrent
; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
; NUMBER OF SEQUENCES: 31
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: David Prashker, Esq.
; STREET: P.O. Box 5387
; CITY: Magnolia
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 01930
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
; COMPUTER: IBM PS/1
; OPERATING SYSTEM: MS DOS
; SOFTWARE: WordPerfect version 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/807,992B
; FILING DATE: March 3, 1997
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: David Prashker, Esq.
; REGISTRATION NUMBER: 29,693
; REFERENCE/DOCKET NUMBER: BIS-033
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (978) 525-3794
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 147 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
US-08-807-992B-1

Query Match 86.7%; Score 104; DB 3; Length 147;
Best Local Similarity 85.0%; Pred. No. 2.1e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20
||||||| : |||||
Db 128 CECRPKDKRAQEKCDKPRR 147

RESULT 4

5194596-9
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FLIDES, JOHN
; C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545

FILING DATE: 27-JUL-1989
; SEQ ID NO:9:
; LENGTH: 120
5194596-9

Query Match 84.2%; Score 101; DB 5; Length 120;
Best Local Similarity 80.0%; Pred. No. 4.4e-07;
Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20
||||||| : |||||
Db 101 CECRPKDKRAQEKCDKPRR 120

RESULT 5

5219739-9
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FLIDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESGF120 AND
; HVEGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVESGF120 AND HVEGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; SEQ ID NO:9:
; LENGTH: 120
5219739-9

Query Match 84.2%; Score 101; DB 5; Length 120;
Best Local Similarity 80.0%; Pred. No. 4.4e-07;
Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20
||||||| : |||||
Db 101 CECRPKDKRAQEKCDKPRR 120

RESULT 6

US-08-469-427A-15
; Sequence 15, Application US/08469427A
; Patent No. 5607918
; GENERAL INFORMATION:
; APPLICANT: Erlanson, Ulf
; APPLICANT: Olafsson, Birgitta
; APPLICANT: Allitalo, Kari
; APPLICANT: Pajusola, Katri
; TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND
; TITLE OF INVENTION: DNA CODING THEREFOR
; NUMBER OF SEQUENCES: 17
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Evenson, McKeown, Edwards & Lenahan
; STREET: 1200 G Street, N.W., Suite 700
; CITY: Washington
; STATE: DC
; ZIP: 20005
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/469,427A
; FILING DATE: 06-JUN-1995
; CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/397,651
FILING DATE: 01-MAR-1995
ATTORNEY/AGENT INFORMATION:
NAME: Evans, Joseph D
REGISTRATION NUMBER: 26,269
REFERENCE/DOCKET NUMBER: 41979CP2
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 628-8800
TELEFAX: (202) 628-8844
INFORMATION FOR SEQ ID NO: 15:
SEQUENCE CHARACTERISTICS:
LENGTH: 189 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-469-427A-15

Query Match 70.8%; Score 85; DB 1; Length 189;
Best Local Similarity 29.7%; Pred. No. 9.4e-05;
Matches 19; Conservative 1; Mismatches 0; Indels 44; Gaps 1;

OY 1 CECRPKDRTKPE-----KCD 16
DB 126 CECRPKDRTKPEHNCERKRLHVPDQTCCKSKNTDSCKARQLEINERTCRCD 185
OY 17 KPRR 20
DB 186 KPRR 189

RESULT 7
US-08-569-063C-20
Sequence 20, Application US/08569063C
Patent No. 5928939
GENERAL INFORMATION:
APPLICANT: ERIKSSON, Ulf
APPLICANT: OLOFSSON, Birgitta
APPLICANT: ALITALO, Kari
APPLICANT: PAUSOLA, Katri
TITLE OF INVENTION: VASCULAR ENDOTHELIAL GROWTH FACTOR-B AND
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Evenson, McKeown, Edwards & Lenahan, P.L.L.C.
STREET: 1200 G Street, N.W., Suite 700
CITY: Washington
STATE: DC
COUNTRY: USA
ZIP: 20005
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/569,063C
FILING DATE: 06-DEC-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/469,427
FILING DATE: 06-JUN-1995
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/397,651
FILING DATE: 01-MAR-1995
ATTORNEY/AGENT INFORMATION:
NAME: EVANS, Joseph D
REGISTRATION NUMBER: 26,269
REFERENCE/DOCKET NUMBER: 1064/41979CP3
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 628-8800
TELEFAX: (202) 628-8844

INFORMATION FOR SEQ ID NO: 20:
SEQUENCE CHARACTERISTICS:
LENGTH: 190 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-569-063C-20

Query Match 70.8%; Score 85; DB 2; Length 190;
Best Local Similarity 29.7%; Pred. No. 9.5e-05;
Matches 19; Conservative 1; Mismatches 0; Indels 44; Gaps 1;

OY 1 CECRPKDRTKPE-----KCD 16
DB 127 CECRPKDRTKPEHNCERKRLHVPDQTCCKSKNTDSCKARQLEINERTCRCD 186
OY 17 KPRR 20
DB 187 KPRR 190

RESULT 8
US-08-784-551C-2
Sequence 2, Application US/08784551C
Patent No. 6013780
GENERAL INFORMATION:
APPLICANT: Gera Neufeld
APPLICANT: Eli Keshet
APPLICANT: Israel Vlodavsky
APPLICANT: Zoya Poltorak
TITLE OF INVENTION: ANGIOGENIC FACTOR AND USE THEREOF
NUMBER OF SEQUENCES: 9
CORRESPONDENCE ADDRESS:
ADDRESSEE: Blank, Rome, Comisky & McCauley LLP
STREET: 900 17th Street, N.W.
CITY: Suite 1000
STATE: N/A
COUNTRY: U.S.A.
ZIP: 20006
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5" Diskette, 1.44 Mb
COMPUTER: IBM compatible
OPERATING SYSTEM: IBM P.C. DOS 5.0
SOFTWARE: FastSeq for Windows 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/784,551C
FILING DATE: January 21, 1997
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Cohen, Herbert
REGISTRATION NUMBER: 25,109
REFERENCE/DOCKET NUMBER: 0274,005/P003
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 463-7700
TELEFAX: (202) 463-6915
TELEX:
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 145 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-784-551C-2

Query Match 57.5%; Score 69; DB 3; Length 191;
Best Local Similarity 25.0%; Pred. No. 0.013;
Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;

QY 1 CECRPKDKRTKPE-----KCD 16
||||| :
DB 128 CECRPKDKRAQENPCGSCERKHLFVODPOTCKSCKNIDSRCKARQLEINERTCRD 187

QY 17 KPRR 20
||||
DB 188 KPRR 191

RESULT 15
US-08-807-992B-2
; Sequence 2, Application US/08807992B
; Patent No. 6022541
; GENERAL INFORMATION:
; APPLICANT: Senger, Donald R
; APPLICANT: Dvorak, Harold F
; TITLE OF INVENTION: Immunological preparation for concurrent
; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
; TITLE OF INVENTION: vessel
; NUMBER OF SEQUENCES: 31
; CORRESPONDENCE ADDRESSES:
; ADDRESSEE: David Prashker, Esq.
; STREET: P.O. Box 5387
; CITY: Magnolia
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 01930

COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
COMPUTER: IBM PS/1
OPERATING SYSTEM: MS DOS
SOFTWARE: Wordperfect version 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/807/992B
FILING DATE: March 3, 1997
CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:
NAME: David Prashker, Esq.
REGISTRATION NUMBER: 29,693
REFERENCE/DOCKET NUMBER: BIS-033
TELECOMMUNICATION INFORMATION:
TELEPHONE: (978) 525-3794
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 191 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-807-992B-2

Query Match 57.5%; Score 69; DB 3; Length 191;
Best Local Similarity 25.0%; Pred. No. 0.013;
Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;

QY 1 CECRPKDKRTKPE-----KCD 16
||||| :
DB 128 CECRPKDKRAQENPCGSCERKHLFVODPOTCKSCKNIDSRCKARQLEINERTCRD 187
QY 17 KPRR 20
||||
DB 188 KPRR 191

Search completed: November 9, 2000, 15:33:01
Job time: 242 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:38 ; Search time 94.87 Seconds
(without alignments)
7.209 Million cell updates/sec

Title: US-09-266-543-4

Perfect score: 120
Sequence: 1 CECRPKDKRTKRECKDKPRR 20

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues

Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :

A_Geneseq_36:*

- 1: /SIDSL/gcgdata/geneseq/geneseq/AA1980.DAT:*
- 2: /SIDSL/gcgdata/geneseq/geneseq/AA1981.DAT:*
- 3: /SIDSL/gcgdata/geneseq/geneseq/AA1982.DAT:*
- 4: /SIDSL/gcgdata/geneseq/geneseq/AA1983.DAT:*
- 5: /SIDSL/gcgdata/geneseq/geneseq/AA1984.DAT:*
- 6: /SIDSL/gcgdata/geneseq/geneseq/AA1985.DAT:*
- 7: /SIDSL/gcgdata/geneseq/geneseq/AA1986.DAT:*
- 8: /SIDSL/gcgdata/geneseq/geneseq/AA1987.DAT:*
- 9: /SIDSL/gcgdata/geneseq/geneseq/AA1988.DAT:*
- 10: /SIDSL/gcgdata/geneseq/geneseq/AA1989.DAT:*
- 11: /SIDSL/gcgdata/geneseq/geneseq/AA1990.DAT:*
- 12: /SIDSL/gcgdata/geneseq/geneseq/AA1991.DAT:*
- 13: /SIDSL/gcgdata/geneseq/geneseq/AA1992.DAT:*
- 14: /SIDSL/gcgdata/geneseq/geneseq/AA1993.DAT:*
- 15: /SIDSL/gcgdata/geneseq/geneseq/AA1994.DAT:*
- 16: /SIDSL/gcgdata/geneseq/geneseq/AA1995.DAT:*
- 17: /SIDSL/gcgdata/geneseq/geneseq/AA1996.DAT:*
- 18: /SIDSL/gcgdata/geneseq/geneseq/AA1997.DAT:*
- 19: /SIDSL/gcgdata/geneseq/geneseq/AA1998.DAT:*
- 20: /SIDSL/gcgdata/geneseq/geneseq/AA1999.DAT:*
- 21: /SIDSL/gcgdata/geneseq/geneseq/AA2000.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	120	100.0	146	13 R22348	Alternative form o
2	120	100.0	146	13 R22354	Sequence of vascul
3	120	100.0	146	19 W53640	Vascular endotheli
4	120	100.0	146	21 Y57029	VEGFA 146 amino ac
5	104	86.7	121	12 R11385	Human vascular end
6	104	86.7	121	14 R42607	Human VEGF-121. H
7	104	86.7	121	20 Y23943	Amino acid sequenc
8	104	86.7	121	20 Y08278	Human growth facto
9	104	86.7	146	20 Y33638	Parapox virus VEGF
10	104	86.7	147	16 R91075	Human vascular end
11	104	86.7	147	17 R94001	VEGF121. Homo sap
12	104	86.7	147	19 W62524	Amino acid sequenc

13	104	86.7	147	21 Y90402	VEGF encoded by c1
14	104	86.7	147	21 Y69412	Amino acid sequenc
15	104	86.7	147	21 Y83033	Human vascular end
16	104	86.7	148	17 R94031	VEGF121 Cys+4. Ho
17	104	86.7	148	17 R94032	VEGF121 Cys+2. Ho
18	104	86.7	177	17 W00586	SAP-ALaMet-VEGF121
19	104	86.7	384	17 R94071	SAP(Gly4Ser)VEGF12
20	104	86.7	399	17 W00587	SAP(Gly4Ser)4VEGF1
21	104	86.7	500	17 W00589	SAP-ALaMet-VEGF121
22	104	86.7	506	17 W00588	SAP-ALaMet-VEGF121
23	104	86.7	512	17 W00590	SAP-ALaMet-VEGF121
24	104	86.7	514	17 R94073	SAP(Gly4Ser)VEGF12
25	104	86.7	524	17 W00594	SAP(Gly4Ser)2VEGF1
26	101	84.2	120	12 R10916	Bovine vascular en
27	101	84.2	120	14 R38916	Bovine VEGF-120.
28	97	80.8	147	20 Y07724	Human VEGF protein
29	96	80.0	147	20 Y33437	Parapox virus VEGF
30	85.5	71.2	164	20 Y43482	Amino acid sequenc
31	85	70.8	190	11 R08120	Mamalian glioma-d
32	85	70.8	190	13 R23347	Rat Vascular Endot
33	85	70.8	190	13 R27350	Sequence of vascul
34	85	70.8	190	13 R27351	Sequence of vascul
35	85	70.8	190	13 R27352	Sequence of vascul
36	85	70.8	190	19 W53639	Vascular endotheli
37	85	70.8	190	19 W53642	Vascular endotheli
38	85	70.8	190	19 W53643	Vascular endotheli
39	85	70.8	190	20 Y33441	Parapox virus VEGF
40	85	70.8	190	21 Y37028	Vascular endotheli
41	83	69.2	214	13 R22351	Alternative form o
42	83	69.2	214	13 R27355	Sequence of vascul
43	83	69.2	214	19 W53641	Vascular endotheli
44	83	69.2	214	21 Y57030	VEGFA 214 amino ac
45	82	68.3	145	19 W56693	Vascular endotheli

ALIGNMENTS

RESULT 1	
R22348	
ID R22348 standard; Protein; 146 AA.	
AC R22348;	
XX	
DT 29-JUL-1992 (first entry)	
XX	
DE Alternative form of VEGF mature A-subunit with 120 amino acids.	
XX	
KM Rat glioma cell; GS-9L; conditioned medium; heterodimer; VEGF-II;	
KW homodimer; mitogenesis; vascular reparat; blood vessel implant;	
KW polymerase chain reaction; alternative splicing.	
XX	
OS Rattus.	
XX	
FT Key	Location/Qualifiers
FT Peptide	1..26
FT	/label= signal
FT Protein	27..146
FT	/label= VEGF_A-subunit
FT	/note= "120 amino acids long"
XX	
PN EP476983-A.	
XX	
PD 25-MAR-1992.	
XX	
PF 18-SEP-1991; 91EP-0308489.	
XX	
PR 21-SEP-1990; 90US-0586640.	
PR 21-SEP-1990; 90US-0586638.	
XX	
PA (MERI) MERCK & CO INC.	
XX	
PI Bayne ML, Conn GL, Thomas KA;	

XX WPI; 1992-098641/13.
DR N-PSDB; Q23039.
XX
PT Vascular endothelial cell growth factor II - used as coating for
PT artificial blood vessels or to promote tissue repair
XX
XX Example 9; Page 14 and Fig 4; 38pp; English.
XX
CC Multiple cDNAs encoding alternative forms of the VEGF A-subunit
CC were amplified using PCR primers as in Q23049 and Q23050. Three
CC sets of clones were identified. Clone #12 encoded the 164 amino acid
CC secreted form of VEGF A-subunit (see R22347). Clone #14 has a 135 bp
CC deletion and thus encodes a 120 amino acid form and Clone #16 has a
CC 72bp insertion and encodes a 188 amino acid mature protein (R22351).
CC The deleted region lies between the second acid base of the Asn140 codon
CC and the third base of the Arg184 codon. The 120 amino acid mature
CC protein has Asn140 converted to Lys140.
CC See also Q23038-Q23059.
XX
SQ Sequence 146 AA;
XX
Query Match 100.0%; Score 120; DB 13; Length 146;
Best Local Similarity 100.0%; Pred. No. 4.4e-09;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 1 CECRPRKDRTPKCDKPRR 20
Db 127 cecrpkkdrtpkcdkpr 146
XXXXXXXXXXXXXXXXXXXX
RESULT 2
R27354
ID R27354 standard; Protein: 146 AA.
XX
AC R27354;
XX
DT 25-FEB-1993 (first entry)
XX
DE Sequence of vascular endothelial cell growth factor VEGF A
DE 146 amino acid residue subunit.
XX
KW Vascular development; mitogen; blood vessel;
KW vascular endothelial growth factor; neovascularisation.
XX
OS Rattus.
XX
PN EP506477-A.
XX
PD 30-SEP-1991.
XX
PF 27-MAR-1992; 92EP-0302750.
XX
PR 28-MAR-1991; 91US-0676436.
XX
PA (MERI) MERCK & CO INC.
XX
PI Bayne ML, Thomas KA;
XX
DR WPI; 1992-325745/40.
DR N-PSDB; Q28953.
XX
PT Vascular endothelial cell growth factor sub-units - which stimulate
PT vascular endothelial cell growth, used for inducing tissue repair
PT and growth.
XX
PS Disclosure; Fig 4; 61pp; English.
XX
CC The full length coding region of the A subunit or monomer of VEGF
CC is determined from three sets of overlapping cDNA clones. Degenerate
CC oligo. primers based on the amino acid sequences
CC Phe-Met-Asp-Val-Tyr-Gln from polypeptide 142 (residues 42-47) and

CC Cys-Lys-Asn-Thr-Asp from polypeptide T38 (residues 164-168) were used
CC to PCR amplify the central region of the cDNA for VEGF A chain.
CC A single band migrating at 420 bp was gel purified, digested with SalI,
CC ligated into pGEX3Zf(+) and sequenced. The nucleotide sequence
CC obtained (p4238) was used to design antisense and sense PCR primers
CC to amplify the 5' and 3' ends of the cDNA. These 5' and 3' clones
CC are denoted p5-15 and pW3, respectively. In addition to the cDNA
CC coding the 164 amino acid secreted form identified by protein
CC sequencing, two alternatively spliced cDNAs encoding a 146 amino acid
CC and a 214 amino acid forms are cloned and sequenced.
XX
SQ Sequence 146 AA;
XX
Query Match 100.0%; Score 120; DB 13; Length 146;
Best Local Similarity 100.0%; Pred. No. 4.4e-09;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 1 CECRPRKDRTPKCDKPRR 20
Db 127 cecrpkkdrtpkcdkpr 146
XXXXXXXXXXXXXXXXXXXX
RESULT 3
W53640
ID W53640 standard; Protein: 146 AA.
XX
AC W53640;
XX
DT 30-JUL-1998 (first entry)
XX
DE Vascular endothelial growth factor II A subunit variant.
XX
KW Vascular endothelial cell growth factor; VEGF II; rat; glioma cell;
KW mitogenesis; blood vessel growth; artificial blood vessel.
XX
OS Rattus sp.
XX
PN US5726152-A.
XX
PD 10-MAR-1998.
XX
PF 31-AUG-1994; 94US-0299185.
XX
PR 31-AUG-1994; 94US-0299185.
PR 21-SEP-1990; 90US-0586638.
PR 05-JAN-1993; 93US-0000834.
XX
PA (MERI) MERCK & CO INC.
XX
PI Bayne ML, Coni GL, Thomas KA;
XX
DR WPI; 1998-206007/18.
XX
PT Vascular endothelial growth factor proteins - having specified A and
PT B sub-units
XX
PS Claim 1; Page 1; 46pp; English.
XX
CC The present sequence represents a rat vascular endothelial growth factor
CC II (VEGF II) A subunit variant with a conversion of Asn 140 to Lys 140,
CC and the deletion of His 141 to Arg 184 from the wild-type given in
CC W53639. The present invention describes: (1) a mammalian VEGF II protein
CC comprising an A subunit from W53639 or W53640, and a B subunit
CC from W53638, W53639 or the first 115-135 amino acids of W53638; and (2)
CC a mammalian VEGF comprising a heterodimer or homodimer of B subunits,
CC and for promoting tissue repair.
CC The growth factor is used for promoting vascular development and repair
CC N.B. The present sequence is not given in the specification but is
CC derived from Fig 5 as stated in the claim.
XX
SQ Sequence 146 AA;

Query Match 100.0%; Score 120; DB 19; Length 146;
 Best Local Similarity 100.0%; Pred. No. 4.4e-09;
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 CECRPKRDRTKPEKCDKPRR 20
 |||||
 DB 127 cecrpkkdrtkpekcdkpr 146

RESULT 4

ID Y57029 standard; Protein: 146 AA.

XX Y57029;

DT 15-FEB-2000 (first entry)

DE VEGFA 146 amino acid residue subunit sequence.

KW VEGF: vascular endothelial growth factor: A subunit; tissue growth;

KM vascular development; artificial blood vessel; repair; human.

OS Homo sapiens.

PN US5994300-A.

PD 30-NOV-1999.

PF 20-SEP-1993; 93US-0124259.

PR 28-MAR-1991; 91US-0676436.

PA (MERI) MERCK & CO INC.

PI Thomas KA, Bayne ML;

DR MPI: 2000-038268/03.

DR N-PSDB: Z39827.

PT Purified and isolated vascular endothelial cell growth factor C subunit

PS for the induction of tissue repair or growth -

PS Disclosure: Fig 3; 58pp; English.

XX This is the amino acid sequence of a 146 amino acid residue A subunit of
 CC vascular endothelial cell growth factor (VEGF). The invention relates to
 CC a purified and isolated VEGF C subunit amino acid sequence Y57029. VEGF
 CC exists in various microheterogeneous forms, and is useful for the
 CC promotion of vascular development and repair. The invention also relates
 CC to human VEGF heterodimers AC or BC and homodimer CC, where A, B and C
 CC are subunit amino acid sequences. The VEGF AC, BC or CC amino acid
 CC sequences can be used in a tissue repairing pharmaceutical composition.
 CC The novel growth factors are useful for the production or coverage of
 CC artificial blood vessels with vascular endothelial cell. They are also
 CC useful for the induction of tissue growth and repair.

XX Sequence 146 AA;

Query Match 100.0%; Score 120; DB 21; Length 146;
 Best Local Similarity 100.0%; Pred. No. 4.4e-09;
 Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 CECRPKRDRTKPEKCDKPRR 20
 |||||
 DB 127 cecrpkkdrtkpekcdkpr 146

RESULT 5

ID R11385 standard; Protein: 121 AA.

XX

AC R11385;

DT 08-MAY-1991 (first entry)

DE Human vascular endothelial cell growth factor 121.

KW Bovine vascular endothelial cell growth factor; angiogenesis;

KM wound healing; hVEGF; PDGF.

OS Bos taurus.

PN WO9102058-A.

PD 21-FEB-1991.

PF 27-JUL-1990; 90WO-US04227.

PR 14-DEC-1989; 89US-0450883.

PR 27-JUL-1989; 89US-0387545.

PA (CALB-) CALIF BIOTECHN INC.

PI Fischer ER, Abthamam, Fiddes JC, Mitchell RL;

DR MPI: 1991-073534/10.

DR N-PSDB: Q11099.

PT DNA encoding vascular endothelial cell growth factor - used for
 PT producing the factor for angiogenesis and re-endothelialisation
 PT in wound healing

PS Disclosure: Fig 7(1-2); 94pp; English.

XX The two forms of VEGF (Q10797 and Q10917) which arise through
 CC different message splicing, have different properties. In partic.
 CC hVEGF121 does not bind to heparin leaving more of the protein free to
 CC bind to VEGF receptor and increase the half-life and distribution of
 CC the protein in circulation, whereas hBEGF165 binds heparin strongly.
 CC The product can be used for angiogenesis and re-endothelialisation
 CC of inner vascular surfaces in wound healing, e.g. treatment of full-
 CC thickness wounds such as dermal ulcers, venous ulcers and diabetic
 CC ulcers, burns, in surgery, in balloon angioplasty and for the in
 CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF
 CC and VEGF can exhibit a mitogenic profile between each factor and
 CC can be used for wound healing or as inhibitors of angiogenesis for
 CC e.g. preventing the growth of tumours.
 CC VEGF analogues in which CYS residues are substid. are more stable.
 CC See also Q10791-93; Q10796-97; Q10806-08 and Q11099.

XX Sequence 121 AA;

Query Match 86.7%; Score 104; DB 12; Length 121;
 Best Local Similarity 85.0%; Pred. No. 4.8e-07;
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPKRDRTKPEKCDKPRR 20
 |||||
 DB 102 cecrpkkdrtkpekcdkpr 121

RESULT 6
 ID R42607 standard; Protein: 121 AA.

XX R42607;

DT 28-OCT-1993 (first entry)

DE Human VEGF-121.

KW Angiogenesis; wound healing; mitogen; vascular endothelial cells;

KM Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.

```

XX Homo sapiens.
OS
XX Key Location/Qualifiers
FH Misc-difference 7
FT Misc-difference 7 /note= "inserted amino acid relative to bVEGF"
FT Misc-difference 115 /note= "Lys 115 of hVEGF-121 is replaced by 44
FT Misc-difference 115 amino acids encoded by an alternatively
FT splice exon in hVEGF-165 (see R38921)."
XX
XX US219739-A.
XX
XX 15-JUN-1993.
XX
XX 27-JUL-1989; 89US-0387545.
XX
XX 27-JUL-1989; 89US-0387545.
XX
XX 14-DEC-1989; 89US-0450883.
XX
XX 27-JUL-1990; 90US-0559041.
XX
XX (SCIO-) SCIOS NOVA INC.
XX
XX Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;
XX
XX WPI; 1993-205302/25.
XX
XX N-PSDB; Q49601.
XX
XX Isolated DNA sequences, expression vectors and transformant cells
XX - used for large scale prodn. of vascular endothelial cell growth
XX factor, for treating wounds in which neo-vascularisation is
XX required
XX
XX Claim 3; Fig 7; 40pp; English.
XX
XX The sequence of Q44260 contains an open reading frame corresponding
XX to the 165 amino acid human vascular endothelial cell growth
XX factor (hVEGF-165, see R38921). Alternative splicing of the
XX sequence gives a shorter coding sequence which encodes the 121
XX amino acid hVEGF (see R42607). The full-length coding sequences can
XX be generated using PCR with human foetal vascular smooth muscle
XX poly-A+ RNA as template.
XX
XX Sequence 121 AA:
SQ

```

Query Match 86.7%; Score 104; DB 14; Length 121;
 Best Local Similarity 85.0%; Pred. No. 4.8e-07;
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20
 ||||| : |||||
 Db 102 cecrpkkdrarqekcdkpr 121

RESULT 7
 Y23943
 ID Y23943 standard; peptide; 121 AA.
 AC Y23943;
 XX
 XX 21-SEP-1999 (first entry)
 DE Amino acid sequence of vascular endothelial growth factor (VEGF) 121.
 XX
 XX Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.
 KM
 XX Homo sapiens.
 OS
 XX JP11178593-A.
 PN
 XX 06-JUL-1999.
 PD
 XX

```

PF 24-DEC-1997; 97JP-0365972.
XX
XX 24-DEC-1997; 97JP-0365972.
XX
XX (FURE) FUJIREBIO KK.
XX
XX WPI; 1999-437318/37.
XX
XX New VEGF121-specific monoclonal antibody - useful for measuring
XX levels of VEGF121
XX
XX PS Disclosure; Page 5; 6pp; Japanese.
XX
XX The present sequence represents vascular endothelial growth factor
XX (VEGF) 121. The specification describes a monoclonal antibody which
XX is specific to VEGF 121, and a hybridoma producing this antibody. The
XX antibody is used in a method for measuring the amount of VEGF 121
XX present in a sample.
XX
XX Sequence 121 AA:
SQ

```

```

Query Match 86.7%; Score 104; DB 20; Length 121;
Best Local Similarity 85.0%; Pred. No. 4.8e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

```

QY 1 CECRPKDKRTKPEKCDKPRR 20
 ||||| : |||||
 Db 102 cecrpkkdrarqekcdkpr 121

RESULT 8
 Y08278
 ID Y08278 standard; Protein; 121 AA.
 AC Y08278;
 XX
 XX 14-JUL-1999 (first entry)
 DE Human growth factor protein fragment VEGF-A121.
 XX
 XX Growth factor; human; dimer; cysteine knot; cellular inclusion body;
 KM pharmaceutical.
 KW
 XX Homo sapiens.
 OS
 XX DE19748734-A1.
 PN
 XX 06-MAY-1999.
 PD
 XX 05-NOV-1997; 97DE-1048734.
 PF
 XX 05-NOV-1997; 97DE-1048734.
 PR
 XX (GBFB) GBS BIOTECHNOLOGISCHE FORSCHUNG MBH.
 PA
 XX Erdmann H, Kaerst U, Mueller C, Rinas U, Welch H;
 XX WPI; 1999-278785/24.
 DR
 XX Preparing active growth factor dimers from inclusion bodies in high
 PT yield
 XX
 XX Claim 14; Page 7; 14pp; German.
 PS
 XX This invention describes the novel preparation of biologically active
 CC dimers of recombinant human growth factors of the cysteine knot family
 CC starting from cellular inclusion bodies. Such dimers are useful in
 CC pharmaceutical compositions and the method provides yields of 31-39.7%
 CC in examples, compared with about 10% for the conventional method (see
 CC Biochemistry, 28 (1989) 2956). Y08278-Y08301 are human growth factor
 CC protein fragments used in the method of the invention.
 CC

SQ Sequence 121 AA;

Query Match 86.7%; Score 104; DB 20; Length 121;
Best Local Similarity 85.0%; Pred. No. 4.8e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKRDRTPEKCDKPRR 20
DB 102 cecrpkkdrarqekcdkpr 121

RESULT 9

ID Y33438 standard; Protein; 146 AA.

XX Y33438;

XX 13-DEC-1999 (first entry)

XX Parapox virus VEGF growth factor homologue protein fragment 5.

XX DE Di701; vascular endothelial growth factor; PPV-VEGF; angiogenesis;

XX KM endothelial cell proliferation; gene therapy; diagnostic; tissue repair;

XX KM immunomodulation; dendritic cell differentiation; DNA vaccine.

XX OS Parapoxvirus.

XX XN DE19913774-A1.

XX PN 30-SEP-1999.

XX PD 27-MAR-1998; 98DE-1013774.

XX PF 27-MAR-1998; 98DE-1013774.

XX PR 27-MAR-1998; 98DE-1013774.

XX PA (PLAC) MAX PLANCK GES FOERDERUNG WISSENSCHAFTEN.

XX PI Dehio C, Roettgen M, Rzha H, Buettner M;

XX DR WPI; 1999-552202/47.

XX PT Homolog of human vascular endothelial growth factor useful for

XX PT stimulating endothelial cell proliferation, e.g. for stimulating

XX PT angiogenesis or tissue repair or for immunomodulation

XX PS Disclosure; Fig 2; 16pp; German.

XX CC This invention describes a novel polypeptide that is a parapox virus

XX CC homologue of human vascular endothelial growth factor (PPV-VEGF) and

XX CC stimulates endothelial cell proliferation. The products of the invention

XX CC have angiogenic activity. The polypeptide can be used in pharmaceutical

XX CC compositions for therapeutic or diagnostic use, e.g. for stimulating

XX CC angiogenesis or tissue repair or for immunomodulation, e.g. by

XX CC stimulating endothelial cell proliferation or inhibiting dendritic cell

XX CC differentiation. Nucleic acids encoding the polypeptide can be used in

XX CC pharmaceutical compositions for DNA vaccination or gene therapy. This

XX CC sequence represents a protein fragment of a parapox virus Di701 vascular

XX CC endothelial growth factor (VEGF) homologue.

SQ Sequence 146 AA;

Query Match 86.7%; Score 104; DB 20; Length 146;
Best Local Similarity 85.0%; Pred. No. 5.7e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKRDRTPEKCDKPRR 20
DB 127 cecrpkkdrarqekcdkpr 146

RESULT 10

R91075
ID R91075 standard; Protein; 147 AA.

XX AC R91075;

XX DT 14-MAY-1996 (first entry)

XX DE Human vascular endothelial growth factor-121, VEGF-121.

XX KM Conjugate; growth factor; FGF; cytoxin; saparin; eye; regulation;

XX KM cell proliferation; psoriasis; pterygia; corneal clouding; cancer;

XX KM rheumatoid arthritis; vascular endothelial; fibroblast; epidermal;

XX KM heparin binding.

XX OS Homo sapiens.

XX FH Key Location/Qualifiers

XX FT Peptide 1..26

XX FT Protein 27..147

XX FT /label= VEGF-121

XX PN W09524928-A2.

XX PD 21-SEP-1995.

XX PF 15-MAR-1995; 95MO-US03448.

XX PR 15-MAR-1994; 94US-0213447.

XX PR 15-MAR-1994; 94US-0213446.

XX PA (PR12-) PRIZM PHARM INC.

XX PI Baird JA, Houston LJ, Nova MP, Sosnowski BA;

XX DR WPI; 1995-336820/43.

XX DR N-PSDB; Q99080.

XX PT New conjugates of growth factor receptor ligand and targeted agent

XX PT -partic. DNA or cytoxin, used to control cell proliferation in

XX PT the eye, e.g. to prevent growth of pterygia and corneal clouding

XX PS Disclosure; Page 184-185; 204pp; English.

XX CC R91075-R91078 are human vascular endothelial growth factors (VEGFs).

XX CC the cDNA of which includes a nucleic acid binding domain (NABD) and

XX CC encodes a heparin binding growth factor, HEGF (e.g. VEGF, FGF, HBEGF),

XX CC to the FP. The FP can be used to target a protein synthesis inhibitor,

XX CC an antisense DNA sequence or an inhibitor of elongation factor 2, to a

XX CC cell carrying a HEGF receptor. The conjugates of the invention are

XX CC used to inhibit cell proliferation in cells carrying the particular

XX CC growth factor receptor. A specific application is to prevent

XX CC excessive proliferation of epithelial cells, fibroblasts and

XX CC keratinocytes in the anterior eye after surgery, partic. to prevent

XX CC recurrence of pterygia after surgical removal, closure of

XX CC trabeculectomy after glaucoma surgery and corneal clouding after

XX CC excimer laser treatment. Other conditions which may be treated include

XX CC tumours, restenosis, psoriasis, Dupuytren's contracture, diabetic

XX CC complications, Xaposi's sarcoma and rheumatoid arthritis.

SQ Sequence 147 AA;

Query Match 86.7%; Score 104; DB 16; Length 147;
Best Local Similarity 85.0%; Pred. No. 5.7e-07;
Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKRDRTPEKCDKPRR 20
DB 128 cecrpkkdrarqekcdkpr 147

RESULT 11
 ID R94001 standard; Protein; 147 AA.
 AC R94001;
 XX
 XX
 DT 09-OCT-1996 (first entry)
 DE VEGF121.
 XX
 XX Vascular endothelial growth factor; VEGF; human; conjugate; tumour; iris;
 KM proliferation inhibition; VEGF-mediated pathophysiological condition;
 KM dermatological disorder; VEGF receptor; vascular proliferation; retina;
 KM ophthalmic disorder; hyperproliferating blood vessel; therapy; psoriasis;
 KM conjunctiva; vitreous humour; rheumatoid arthritis; skin cancer;
 KW varicose veins; gene therapy.
 XX
 OS Homo sapiens.
 XX
 PN MO9606641-A1.
 XX
 PD 07-MAR-1996.
 XX
 PF 29-AUG-1995; 95WO-US10973.
 XX
 PR 16-MAY-1995; 95US-0441979.
 PR 29-AUG-1994; 94US-0287961.
 XX
 PA (PRIZ-) PRIZM PHARM INC.
 XX
 PI Fleurbaaj GA, Freund E, Houston IL, Nova MP, Sosnowski BA;
 PI Victor KD;
 XX
 DR WPI: 1996-160151/16.
 DR N-PSDB: R17613.
 XX
 PT Vascular endothelial cell growth factor (VEGF) conjugates - having
 PT VEGF linked to targeted agent, used for inhibiting proliferation of
 PT cells, e.g. for gene therapy
 XX
 PS Disclosure; Page 122-123; 193pp; English.
 XX
 CC R94001-R94004, R94031, R94032, R94039 and R94040 represent vascular
 CC endothelial growth factors (VEGF). This sequence represents VEGF121.
 CC These sequences were used in VEGF conjugates of the invention. In the
 CC conjugates, VEGF (or fragments of it) are linked to a targeted agent
 CC (this can be via a linker sequence), so that the conjugate binds to a
 CC VEGF receptor. Cys-modified forms of VEGF are particularly suitable for
 CC chemical conjugation to linkers and targeted agents. The conjugates are
 CC used for inhibiting proliferation of cells bearing VEGF receptors. They
 CC can be used for treating a VEGF-mediated pathophysiological condition,
 CC including dermatological disorders with underlying vascular
 CC proliferation, solid tumours or an ophthalmic disorder of
 CC hyperproliferating blood vessels of the retina, iris, conjunctiva or
 CC vitreous humour. The conjugates can also be used for treating psoriasis,
 CC rheumatoid arthritis, skin cancers and other tumours, or varicose veins.
 CC They are also suitable for use in gene therapy.
 XX
 SQ Sequence 147 AA;

Query Match 86.7%; Score 104; DB 17; Length 147;
 Best Local Similarity 85.0%; Pred. No. 5.7e-07;
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDRTRPEKCDKPRR 20
 ||||| : |||||
 Db 128 cecrpkkdrtrapekcdkpr 147

RESULT 12
 W62524

ID W62524 standard; Protein; 147 AA.
 XX
 XX W62524;
 AC
 XX
 XX
 DT 11-SEP-1998 (first entry)
 DE Amino acid sequence of human VEGF-121.
 XX
 XX Human; vascular endothelial growth factor; VEGF; production;
 KM nitric oxide; prostacyclin; treatment; prevention; intimal hyperplasia;
 KM blood vessel; essential hypertension; pulmonary arterial hypertension;
 KM PAH; cor pulmonale; atherosclerosis; (re)stenosis; angioplasty;
 KM coronary bypass operation; anastomosis; endarterectomy.
 XX
 OS Homo sapiens.
 XX
 PN WO9820027-A2.
 XX
 PD 14-MAY-1998.
 XX
 PF 03-NOV-1997; 97WO-GB03015.
 XX
 PR 21-AUG-1997; 97GB-0017791.
 PR 01-NOV-1996; 96GB-0022852.
 PR 09-MAY-1997; 97GB-0009494.
 XX
 PA (EURO-) EUROGENE LTD.
 XX
 PI Barker SGE, Martin JF, Yla-Herttuala S;
 PI
 XX
 DR WPI: 1998-286857/25.
 DR N-PSDB: V38450.
 XX
 PT Treatment or prevention of intimal hyperplasia by stimulating
 PT production of nitric oxide - by administration of vascular
 PT endothelial growth factor, useful for, e.g. treating or preventing
 PT intimal hyperplasia
 XX
 PS Claim 8; Page 54; 70pp; English.
 XX
 CC The present sequence represents human vascular endothelial growth factor
 CC 121 (VEGF-121). VEGF stimulates production of nitric oxide and
 CC of prostacyclin. VEGF can therefore be used for treatment or prevention
 CC of intimal hyperplasia in a blood vessel. VEGF can be used for treating
 CC or preventing any condition responsive to in vivo stimulation of
 CC nitric oxide and prostacyclin (especially essential hypertension,
 CC pulmonary arterial hypertension (PAH), cor pulmonale and
 CC atherosclerosis). VEGF is specifically used to control (re)stenosis,
 CC where caused by PAH or by a surgical procedure such as angioplasty,
 CC coronary bypass operation, anastomosis or endarterectomy.
 XX
 SQ Sequence 147 AA;

Query Match 86.7%; Score 104; DB 19; Length 147;
 Best Local Similarity 85.0%; Pred. No. 5.7e-07;
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDRTRPEKCDKPRR 20
 ||||| : |||||
 Db 128 cecrpkkdrtrapekcdkpr 147

RESULT 13
 Y90402
 ID Y90402 standard; Protein; 147 AA.
 AC Y90402;
 XX
 XX
 DT 18-JUL-2000 (first entry)
 DE VEGF encoded by clone VEGF121, SEO ID NO:1.
 XX

Targeted gene delivery; fibroblast growth factor receptor;
 EGF-binding protein; nucleic acid binding protein;
 receptor internalised ligand; cytotoxin; saporin; gene therapy;
 cytotoxic; antiproliferative; cancer; melanoma; diabetic retinopathy;
 rheumatoid arthritis; restenosis; Dupuytren's contracture; psoriasis;
 eczema; heparin-binding epidermal growth factor; HBEGF;
 vascular endothelial growth factor; VEGF.

Unidentified.

US6037329-A.

14-MAR-2000.

24-SEP-1996; 96US-0718904.

15-MAR-1994; 94US-0213446.

15-MAR-1994; 94US-0213447.

29-AUG-1994; 94US-0297961.

13-SEP-1994; 94US-0305771.

16-MAY-1995; 95US-0441979.

(SELE-) SELECTIVE GENETICS INC.

Chandler LA, Sosnowski BA, Baird JA;

WPI: 2000-292008/25.

N-PSDB; A12853.

Gene delivery system, useful for treating or preventing cancer and

rheumatoid arthritis, comprises receptor internalized ligand linked to

nucleic acid binding domain and nucleic acid

Disclosure: Columns 83-84; 131pp; English.

The invention relates to a novel gene delivery composition for the

targeted delivery of cytotoxins or prodrug-converting enzymes to

proliferating cells. The gene delivery composition comprises a protein

that binds the fibroblast growth factor receptor (FGFR) which is fused or

chemically conjugated to a nucleic acid binding domain. The nucleic

acid binding domain is complexed with a suitable expression construct

encoding a cytotoxin such as saporin. One or more linkers may join the

FGFR-binding protein to the nucleic acid binding protein. These are

selected to increase the specificity, toxicity, solubility, serum

stability or intracellular availability, and may serve to promote

condensation of nucleic acids for delivery to a cell. The fusion protein

binds to FGFR and is internalised by cells that carry this receptor. The

gene delivery composition is used for the therapeutic alteration of the

function, gene expression and viability of cells. In particular, it may

be used for the treatment and prevention of cell proliferative disorders,

for example after eye surgery, melanoma and many other sorts of cancer,

rheumatoid arthritis, restenosis, Dupuytren's contracture, diabetic

retinopathy, psoriasis and eczema. The gene delivery compositions of the

invention have high specificity for particular cells and can deliver

larger amounts of DNA compared to prior art methods. Sequences A12853-

A12856 represent cDNA clones encoding vascular endothelial growth

factor (VEGF), and sequences Y90402-Y90405 represent the encoded

VEGF proteins. A12857 represents cDNA encoding human heparin-binding

epidermal growth factor (HBEGF) precursor, and Y90406-Y90409 represent

HBEGF precursor and mature proteins.

Sequence 147 AA;

Query Match 86.7%; Score 104; DB 21; Length 147;

Best Local Similarity 85.0%; Pred. No. 5.7e-07;

Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

1 CECRPKDKRTKPEKCDKPRR 20

128 cecrpkkdrarqekcdkpr 147

RESULT 14

ID Y69412 standard; Protein; 147 AA.

AC Y69412;

DT 03-JUL-2000 (first entry)

Amino acid sequence of vascular endothelial growth factor 121.

Human; vascular endothelial growth factor; VEGF 121; angiogenic factor;

blood vessel injury; vascular injury; microvascular angiopathy;

thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;

toxic shock syndrome; venom; hypercoagulable state; platelet activation;

platelet aggregation; thrombosis; preclampsia; sepsis; pancreatitis;

intravascular coagulation; thrombotic thrombocytopenia purpura;

acute renal failure; myocardial infarction; ischemic bowel disease;

stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;

acute respiratory distress syndrome; pneumonia; pulmonary emboli;

birth prematurity disorder; wound; allergy; hypersensitivity;

autoimmune disease; organ transplant; focal glomerulosclerosis;

amyloidosis.

Homo sapiens.

WO200013702-A2;

16-MAR-2000.

09-SEP-1999; 99WO-US20480.

09-SEP-1998; 98US-0099694.

26-MAR-1999; 99US-0126406.

27-MAR-1999; 99US-0126615.

(SCIO-) SCIOS INC.

Schneider GF, Johnson RJ;

WPI: 2000-256861/22.

N-PSDB; 299544.

Novel methods and compositions for the prevention and treatment of

microvascular angiopathies by administration of angiogenic factors such

as vascular endothelial growth factor (VEGF)

Disclosure: Fig 3; 46pp; English.

The present sequence represents native human vascular endothelial growth

factor (VEGF) 121. VEGF is an angiogenic factor. VEGF proteins are used

for the prevention or repair of injury to blood vessels or associated

nonvascular tissues (served by the blood vessels) and for the prevention

and repair of vascular injury associated with microvascular angiopathy,

particularly thrombotic microangiopathy. The proteins methods may also

be used for the prevention and treatment of kidney diseases associated

with injury to, or atrophy of, the vasculature of the glomerulus and

interstitium. Conditions which may be treated include haemolytic uremic

syndrome, toxic shock syndrome, venom exposure, chemical exposure,

hypercoagulable states, platelet activation or aggregation, thrombosis,

preclampsia, thrombotic thrombocytopenia purpura, disseminated

intravascular coagulation, sepsis, pancreatitis, acute renal failure,

myocardial infarction, ischemic bowel disease, transient ischemic

attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung

endothelium injury, acute respiratory distress syndrome, toxic alveolar

injury, pneumonia, pulmonary emboli, birth prematurity disorders,

wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ

transplants, focal glomerulosclerosis, and amyloidosis.

Sequence 147 AA;

Query Match 86.7%; Score 104; DB 21; Length 147;

Best Local Similarity 85.0%; Pred. No. 5.7e-07;

Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECPRKDKRTKPEKCDKPRR 20
 ||||||| : |||||||
 Db 128 cecrpkkdrargckcdkpr 147

RESULT 15

YB3033
 ID YB3033 standard; Protein; 147 AA.

AC YB3033;

DT 04-JUL-2000 (first entry)

DE Human vascular endothelial growth factor (hVEGF121).

KW Vascular endothelial growth factor; human; angiogenesis; VEGF;
 KW capillary formation; hypertension; treatment; kidney; CNS; stroke;
 KW meningitis; central nervous system; tumour; infection; bone growth;
 KW hypoxia; hypercapnia; fibrosis; inflammatory bowel disease;
 KW diarrhoea; allografts; cardiac valve.

OS Homo sapiens.

PN W0200013703-A2.

PD 16-MAR-2000.

PE 09-SEP-1999; 99WO-US20481.

PR 09-SEP-1998; 98US-0099694.

PR 26-MAR-1999; 99US-0126406.

PR 27-MAR-1999; 99US-0126615.

PA (SCIO-) SCIOS INC.

PI Schreiner GF, Johnson RJ;

DR WPI; 2000-256862/22.

DR N-PSDB; 293345.

PT Novel methods for treating hypertension by administering a factor which
 PT increases angiogenesis and/or vascular permeability -
 PS Claim 5; Figure 6; 51pp; English.

CC Administering vascular endothelial growth factor (VEGF) can be used
 CC for treating hypertension (especially salt-dependent hypertension)
 CC Administering of VEGF promotes angiogenesis and/or vascular or
 CC capillary permeability. The method is also useful in treating
 CC disorders related to abnormal transport of solutes across endothelial
 CC cells. Such disorders include the treatment or prevention of kidney
 CC disease associated with impaired filtration or excretion of solutes;
 CC the treatment or prevention of diseases of the central nervous system
 CC associated with alterations in cerebrospinal fluid, e.g. stroke,
 CC meningitis, tumour, infections, and bone growth disorders; treatment
 CC or prevention of hypoxia or hypercapnia or fibrosis arising from
 CC accumulation of fluid secretions in the lungs, e.g. acute respiratory
 CC distress syndrome, toxic alveolar injury, pneumonia, infections,
 CC surgical intervention, cystic fibrosis; treatment or prevention of
 CC pulmonary dysfunction arising from injury to the pulmonary
 CC endothelium, including disorders arising from premature birth, and
 CC pulmonary hypertension; treatment or prevention of disease arising
 CC from disordered transport of fluid and solutes across the intestinal
 CC epithelium, e.g. inflammatory bowel disease, diarrhoea; treatment or
 CC prevention of ascites accumulation in the peritoneum; enhancement of
 CC efficacy of solute flux; preservation or enhancement of function of
 CC organ allografts; and treatment of cardiac valve disease. This
 CC sequence is the native human vascular endothelial growth
 CC factor hVEGF121. The activity of VEGF is mediated by interaction
 CC with specific receptors on target tissues, most notably the vascular
 CC endothelium. VEGF exists as five different length monomer chains due

CC to alternative splicing of the VEGF RNA transcript. VEGF121 is
 CC unique among the five forms in that it does not bind to heparin like
 CC molecules associated with the extracellular matrix.

SQ Sequence 147 AA;

Query Match 86.7%; Score 104; DB 21; Length 147;

Best Local Similarity 85.0%; Pred. No. 5.7e-07;

Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
 OY 1 CECPRKDKRTKPEKCDKPRR 20
 ||||||| : |||||||
 Db 128 cecrpkkdrargckcdkpr 147

Search completed: November 9, 2000, 15:30:38
 Job time: 103 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:33:00 ; Search time 63.67 Seconds
(without alignments)
3.422 Million cell updates/sec

Title: US-09-266-543-3

Perfect score: 78
Sequence: 1 CRTKPKCKDKPRR 13

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 164575 seqs, 16761186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: Issued_Patents_AA:*
2: /cgn2_6/prodata/2/1aa/5A_COMB.pep:*
3: /cgn2_6/prodata/2/1aa/5B_COMB.pep:*
4: /cgn2_6/prodata/2/1aa/6_COMB.pep:*
5: /cgn2_6/prodata/2/1aa/PCITUS_COMB.pep:*
6: /cgn2_6/prodata/2/1aa/Backfile1.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	53	67.9	121	5	5194596-19 Patent No. 5194596
2	53	67.9	121	5	5219739-20 Patent No. 5219739
3	53	67.9	147	3	US-08-807-992B-1 Sequence 1, Appl
4	51.5	66.0	120	5	5194596-9 Patent No. 5194596
5	51.5	66.0	120	5	5219739-9 Patent No. 5219739
6	40	51.3	12	3	US-08-742-243-70 Sequence 70, Appl
7	40	51.3	588	1	US-08-391-615-5 Sequence 5, Appl
8	39	50.0	19	3	US-08-807-992B-7 Sequence 7, Appl
9	39	50.0	19	3	US-08-807-992B-13 Sequence 13, Appl
10	39	50.0	19	3	US-08-807-992B-16 Sequence 16, Appl
11	39	50.0	19	3	US-08-807-992B-30 Sequence 30, Appl
12	39	50.0	164	5	5194596-17 Patent No. 5194596
13	39	50.0	164	5	5219739-17 Patent No. 5219739
14	39	50.0	164	5	5219739-18 Patent No. 5219739
15	39	50.0	165	5	5194596-18 Patent No. 5194596
16	39	50.0	165	5	5219739-19 Patent No. 5219739
17	39	50.0	189	1	US-08-469-427A-15 Sequence 15, Appl
18	39	50.0	190	2	US-08-569-063C-20 Sequence 20, Appl
19	39	50.0	190	2	5332671-3 Patent No. 5332671
20	39	50.0	191	3	US-08-567-200A-2 Sequence 2, Appl
21	39	50.0	191	3	US-08-807-992B-2 Sequence 2, Appl
22	39	50.0	191	3	US-08-691-794-2 Sequence 2, Appl
23	39	50.0	191	5	5332671-4 Patent No. 5332671
24	39	50.0	214	5	5240848-11 Patent No. 5240848
25	39	50.0	215	5	US-08-807-992B-3 Sequence 3, Appl
26	39	50.0	215	5	5219739-22 Patent No. 5219739
27	39	50.0	215	5	5240848-7 Patent No. 5240848
28	39	50.0	231	4	PCR-US96-09001-10 Sequence 10, Appl

29	39	50.0	232	2	US-08-999-811-7 Sequence 7, Appl
30	39	50.0	232	2	US-08-824-996-9 Sequence 9, Appl
31	39	50.0	232	3	US-08-807-992B-4 Sequence 4, Appl
32	39	50.0	232	3	US-09-042-105-7 Sequence 7, Appl
33	39	50.0	559	1	US-08-320-559-31 Sequence 31, Appl
34	39	50.0	559	1	US-08-545-860D-31 Sequence 31, Appl
35	39	50.0	559	4	PCR-US94-04496-31 Sequence 31, Appl
36	39	50.0	2813	3	US-08-896-449A-2 Sequence 2, Appl
37	39	50.0	2813	3	US-09-132-653-2 Sequence 2, Appl
38	37	47.4	6	3	US-08-807-992B-10 Sequence 10, Appl
39	37	47.4	22	1	US-07-664-989B-33 Sequence 33, Appl
40	37	47.4	145	3	US-08-784-551C-2 Sequence 2, Appl
41	37	47.4	153	1	US-08-469-486-55 Sequence 55, Appl
42	37	47.4	153	1	US-08-469-658-55 Sequence 55, Appl
43	37	47.4	768	2	US-08-222-617A-5 Sequence 5, Appl
44	37	47.4	1162	2	US-08-728-323A-2 Sequence 2, Appl
45	37	47.4	3666	2	US-08-222-617A-12 Sequence 12, Appl

ALIGNMENTS

RESULT 1
5194596-19
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C. MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 19:
; LENGTH: 121
5194596-19

Query Match 67.9%; Score 53; DB 5; Length 121;
Best local Similarity 75.0%; Pred. No. 0.24;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPKCKDKPRR 13
| : |||||
DB 110 RARQKCKDKPRR 121

RESULT 2
5219739-20
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVESGF120 AND
; BVESGF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS; BVESGF120 AND BVESGF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 20:
; LENGTH: 121
5219739-20

Query Match 67.9%; Score 53; DB 5; Length 121;

Best Local Similarity 75.0%; Pred. No. 0.24;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTKPEKCDKPRR 13

Db 110 FAROEKCDKPRR 121

RESULT 3

US-08-807-992B-1
; Sequence 1, Application US/08807992B
; Patent No. 6022541
; GENERAL INFORMATION:
; APPLICANT: Senger, Donald R
; APPLICANT: Dvorak, Harold F
; TITLE OF INVENTION: Immunological preparation for concurrent
; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
; NUMBER OF SEQUENCES: 31
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: David Prashker, Esq.
; STREET: P.O. Box 5387
; CITY: Magnolia
; STATE: Massachusetts
; COUNTRY: USA
; ZIP: 01930
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 MB storage
; COMPUTER: IBM PS/1
; OPERATING SYSTEM: MS DOS
; SOFTWARE: Wordperfect version 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/807,992B
; FILING DATE: March 3, 1997
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: David Prashker, Esq.
; REGISTRATION NUMBER: 29,693
; REFERENCE/DOCKET NUMBER: BIS-033
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (978) 525-3794
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 147 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; US-08-807-992B-1

Query Match 67.9%; Score 53; DB 3; Length 147;
Best Local Similarity 75.0%; Pred. No. 0.29;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTKPEKCDKPRR 13

Db 136 FAROEKCDKPRR 147

RESULT 4

5194596-9
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C. MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545

FILING DATE: 27-JUL-1989
; SEQ ID NO: 9
; LENGTH: 120
; 5194596-9

Query Match 66.0%; Score 51.5; DB 5; Length 120;
Best Local Similarity 61.1%; Pred. No. 0.4;
Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

OY 1 CRTK-----PEKCDKPRR 13

Db 103 CRPKKAROEKCDKPRR 120

RESULT 5

5219739-9
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND
; BVGEF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND BVGEF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO: 9
; LENGTH: 120
; 5219739-9

Query Match 66.0%; Score 51.5; DB 5; Length 120;
Best Local Similarity 61.1%; Pred. No. 0.4;
Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

OY 1 CRTK-----PEKCDKPRR 13

Db 103 CRPKKAROEKCDKPRR 120

RESULT 6

US-08-742-243-70
; Sequence 70, Application US/08742243A
; Patent No. 6024955
; GENERAL INFORMATION:
; APPLICANT: Asano, Makoto
; APPLICANT: YUKITA, AYAKO
; APPLICANT: Hanatahi, Mitsuya
; APPLICANT: Matsumoto, Tomoe
; APPLICANT: Okamoto, Masaji
; APPLICANT: Suzuki, Hideo
; TITLE OF INVENTION: Peptides And Monoclonal Antibodies
; FILE REFERENCE: 07896/005001
; CURRENT APPLICATION NUMBER: US/08/742,243A
; CURRENT FILING DATE: 1996-10-31
; EARLIER APPLICATION NUMBER: 308184/1995
; EARLIER FILING DATE: 1995-11-01
; NUMBER OF SEQ ID NOS: 70
; SOFTWARE: Patentlfr Ver. 2.0
; SEQ ID NO 70
; LENGTH: 12
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: synthesized
; OTHER INFORMATION: peptide fragment
; US-08-742-243-70

Query Match 51.3%; Score 40; DB 3; Length 12;
Best Local Similarity 75.0%; Pred. No. 2.3;
Matches 6; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 6 EKCCKPRR 13
: : : : :
Db 5 QECCKPRR 12

RESULT 7
US-08-391-615-5

; Sequence 5, Application US/08391615
; Patent No. 5550054

; GENERAL INFORMATION:

; APPLICANT: Witte, Owen

; APPLICANT: Tsukada, Satoshi

; APPLICANT: Saffran, Douglas

; APPLICANT: Rawlings, David

; TITLE OF INVENTION: HEMATOPOIETIC RESTRICTED TYROSINE KINASE

; NUMBER OF SEQUENCES: 7

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: FLEHR, HOBBACH, TEST, ALBRITTON & HERBERT

; STREET: 4 Embarcadero Center, Suite 3400

; CITY: San Francisco

; STATE: California

; COUNTRY: USA

; ZIP: 94111-4187

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Patentin Release #1.0, Version #1.25

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/391.615

; FILING DATE:

; CLASSIFICATION: 435

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: US 08/006,449

; FILING DATE: 21-JAN-1993

; ATTORNEY/AGENT INFORMATION:

; NAME: Rowland, Bertram I

; REGISTRATION NUMBER: 20,015

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (415) 781-1989

; TELEFAX: (415) 398-3249

; TELEEX: 910 277299 FMT UR

; INFORMATION FOR SEQ ID NO: 5:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 388 amino acids

; TYPE: amino acid

; STRANDEDNESS: single

; TOPOLOGY: linear

; MOLECULE TYPE: peptide

US-08-391-615-5

Query Match 51.3%; Score 40; DB 1; Length 588;
Best Local Similarity 54.5%; Pred. No. 84;
Matches 6; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

OY 1 CRTKPKCKDP 11
: : : : :
Db 301 CRKSSPCDRP 311

RESULT 8
US-08-807-992B-7

; Sequence 7, Application US/08807992B

; Patent No. 6022541

; GENERAL INFORMATION:

; APPLICANT: Senger, Donald R

; APPLICANT: Dvorak, Harold F

; TITLE OF INVENTION: Immunological preparation for concurrent

; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular

; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated bio

; NUMBER OF SEQUENCES: 31

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: David Prashker, Esq.

; STREET: P.O. Box 5387

; CITY: Magnolia

; STATE: Massachusetts

; COUNTRY: USA

; ZIP: 01930

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage

; COMPUTER: IBM PS/1

; OPERATING SYSTEM: MS DOS

; SOFTWARE: Wordperfect version 5.1

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/807,992B

; FILING DATE: March 3, 1997

; CLASSIFICATION: 424

; ATTORNEY/AGENT INFORMATION:

; NAME: David Prashker, Esq.

; REGISTRATION NUMBER: 29,693

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (378) 525-3794

; INFORMATION FOR SEQ ID NO: 7:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 19 amino acids

; TYPE: amino acid

; STRANDEDNESS: single

; TOPOLOGY: linear

US-08-807-992B-7

Query Match 50.0%; Score 39; DB 3; Length 19;
Best Local Similarity 85.7%; Pred. No. 4.9;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 7 KCDKPRR 13
: : : : :
Db 13 KCDKPRR 19

RESULT 9
US-08-807-992B-13

; Sequence 13, Application US/08807992B

; Patent No. 6022541

; GENERAL INFORMATION:

; APPLICANT: Senger, Donald R

; APPLICANT: Dvorak, Harold F

; TITLE OF INVENTION: Immunological preparation for concurrent

; TITLE OF INVENTION: specific binding to spatially exposed regions of vascular

; TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated bio

; NUMBER OF SEQUENCES: 31

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: David Prashker, Esq.

; STREET: P.O. Box 5387

; CITY: Magnolia

; STATE: Massachusetts

; COUNTRY: USA

; ZIP: 01930

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage

; COMPUTER: IBM PS/1

; OPERATING SYSTEM: MS DOS

; SOFTWARE: Wordperfect version 5.1

; CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/807,992B
FILING DATE: March 3, 1997
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: David Prashker, Esq.
REGISTRATION NUMBER: 29,693
REFERENCE/DOCKET NUMBER: BIS-033
TELECOMMUNICATION INFORMATION:
TELEPHONE: (978) 525-3794
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 19 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-807-992B-13

Query Match 50.0%; Score 39; DB 3; Length 19;
Best Local Similarity 85.7%; Pred. No. 4.9;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 7 KCDKPRR 13
Db 13 RCDKPRR 19

RESULT 10
US-08-807-992B-16
Sequence 16, Application US/08807992B
Patent No. 6022541
GENERAL INFORMATION:
APPLICANT: Senger, Donald R
APPLICANT: Dvorak, Harold F
TITLE OF INVENTION: Immunological preparation for concurrent
TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blood
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS:
ADDRESSEE: David Prashker, Esq.
STREET: P.O. Box 5387
CITY: Magnolia
STATE: Massachusetts
COUNTRY: USA
ZIP: 01930
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
COMPUTER: IBM PS/1
OPERATING SYSTEM: MS DOS
SOFTWARE: WordPerfect version 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/807,992B
FILING DATE: March 3, 1997
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: David Prashker, Esq.
REGISTRATION NUMBER: 29,693
REFERENCE/DOCKET NUMBER: BIS-033
TELECOMMUNICATION INFORMATION:
TELEPHONE: (978) 525-3794
INFORMATION FOR SEQ ID NO: 16:
SEQUENCE CHARACTERISTICS:
LENGTH: 19 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-807-992B-16

Query Match 50.0%; Score 39; DB 3; Length 19;
Best Local Similarity 85.7%; Pred. No. 4.9;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 7 KCDKPRR 13
Db 13 RCDKPRR 19

RESULT 11
US-08-807-992B-30
Sequence 30, Application US/08807992B
Patent No. 6022541
GENERAL INFORMATION:
APPLICANT: Senger, Donald R
APPLICANT: Dvorak, Harold F
TITLE OF INVENTION: Immunological preparation for concurrent
TITLE OF INVENTION: specific binding to spatially exposed regions of vascular
TITLE OF INVENTION: permeability factor bound in-vivo to a tumor associated blo
NUMBER OF SEQUENCES: 31
CORRESPONDENCE ADDRESS:
ADDRESSEE: David Prashker, Esq.
STREET: P.O. Box 5387
CITY: Magnolia
STATE: Massachusetts
COUNTRY: USA
ZIP: 01930
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.40 Mb storage
COMPUTER: IBM PS/1
OPERATING SYSTEM: MS DOS
SOFTWARE: WordPerfect version 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/807,992B
FILING DATE: March 3, 1997
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: David Prashker, Esq.
REGISTRATION NUMBER: 29,693
REFERENCE/DOCKET NUMBER: BIS-033
TELECOMMUNICATION INFORMATION:
TELEPHONE: (978) 525-3794
INFORMATION FOR SEQ ID NO: 30:
SEQUENCE CHARACTERISTICS:
LENGTH: 19 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
FRAGMENT TYPE: internal
US-08-807-992B-30

Query Match 50.0%; Score 39; DB 3; Length 19;
Best Local Similarity 85.7%; Pred. No. 4.9;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 7 KCDKPRR 13
Db 13 RCDKPRR 19

RESULT 12
5194596-17
Patent No. 5194596
APPLICANT: TISCER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
C.; MITCHELL, RICHARD L.
TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
GROWTH FACTOR
NUMBER OF SEQUENCES: 32
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/450,883
FILING DATE: 14-DEC-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 387,545

FILING DATE: 27-JUL-1989
; SEQ ID NO:17:
; LENGTH: 164
5194596-17

Query Match 50.0%; Score 39; DB 5; Length 164;
Best Local Similarity 85.7%; Pred. No. 36;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKPRR 13
Db 158 RCDKPRR 164

RESULT 13
5219739-17
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND
; BVGEF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND BVGEF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:17:
; LENGTH: 164
5219739-17

Query Match 50.0%; Score 39; DB 5; Length 164;
Best Local Similarity 85.7%; Pred. No. 36;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKPRR 13
Db 158 RCDKPRR 164

RESULT 14
5219739-18
; Patent No. 5219739
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES,
; JOHN C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: DNA SEQUENCES ENCODING BVGEF120 AND
; BVGEF 121 AND METHODS FOR THE PRODUCTION OF BOVINE AND HUMAN
; VASCULAR ENDOTHELIAL CELL GROWTH FACTORS, BVGEF120 AND BVGEF121
; NUMBER OF SEQUENCES: 40
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/559,041
; FILING DATE: 27-JUL-1990
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 450,883
; FILING DATE: 14-DEC-1989
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:18:
; LENGTH: 164
5219739-18

Query Match 50.0%; Score 39; DB 5; Length 164;
Best Local Similarity 85.7%; Pred. No. 36;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
QY 7 KCDKPRR 13

Db 158 RCDKPRR 164

RESULT 15
5194596-18
; Patent No. 5194596
; APPLICANT: TISCHER, EDMUND G.; ABRAHAM, JUDITH A.; FIDDES, JOHN
; C.; MITCHELL, RICHARD L.
; TITLE OF INVENTION: PRODUCTION OF VASCULAR ENDOTHELIAL CELL
; GROWTH FACTOR
; NUMBER OF SEQUENCES: 32
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/450,883
; FILING DATE: 14-DEC-1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 387,545
; FILING DATE: 27-JUL-1989
; SEQ ID NO:18:
; LENGTH: 165
5194596-18

Query Match 50.0%; Score 39; DB 5; Length 165;
Best Local Similarity 85.7%; Pred. No. 36;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKPRR 13
Db 159 RCDKPRR 165

Search completed: November 9, 2000, 15:33:01
Job time: 242 sec

Thu Nov 9 15:49:35 2000

us-09-266-543-3.rai

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:33:00 ; Search time 63.67 seconds
(without alignments)
5.528 Million cell updates/sec

Title: US-09-266-543-2

Perfect score: 115
Sequence: 1 SNNYTYRSRKSSWYALKR 21

Scoring table: BLOSUM62
Gapop 10.0 , Gapept 0.5

Searched: 164575 seqs, 1676186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/prodata/2/1aa/3A_COMB.pep:*
2: /cgn2_6/prodata/2/1aa/5B_COMB.pep:*
3: /cgn2_6/prodata/2/1aa/6_COMB.pep:*
4: /cgn2_6/prodata/2/1aa/PCTUS_COMB.pep:*
5: /cgn2_6/prodata/2/1aa/Backfilest1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	115	100.0	24	1	US-07-830-330-9
2	115	100.0	28	1	US-07-830-330-8
3	115	100.0	145	1	US-08-187-780-3
4	115	100.0	145	2	US-08-478-485-3
5	115	100.0	146	5	5464943-26
6	115	100.0	155	4	PCT-US91-02186-4
7	115	100.0	155	5	5514566-6
8	112	97.4	132	1	US-08-100-744-4
9	112	97.4	132	1	US-08-284-784-4
10	112	97.4	132	2	US-08-854-811-4
11	112	97.4	140	4	PCT-US90-06962-1
12	112	97.4	146	2	US-08-231-894A-11
13	112	97.4	146	2	US-08-231-894A-13
14	112	97.4	146	2	US-08-231-894A-14
15	112	97.4	146	2	US-08-231-894A-15
16	112	97.4	146	3	US-09-105-678A-49
17	112	97.4	146	5	5464943-6
18	112	97.4	146	5	5464943-8
19	112	97.4	146	5	5464943-10
20	112	97.4	146	5	5464943-12
21	112	97.4	146	5	5464943-14
22	112	97.4	147	5	5175147-6
23	112	97.4	147	5	5175147-8
24	112	97.4	147	5	5314872-1
25	112	97.4	150	1	US-08-441-629-8
26	112	97.4	150	3	US-08-776-207-8
27	112	97.4	150	4	PCT-US95-09172-8
28	112	97.4	153	3	US-08-325-186-2

29	112	97.4	154	2	US-08-438-439C-24	Sequence 24, Appl
30	112	97.4	154	3	US-08-325-186-1	Sequence 1, Appl
31	112	97.4	154	4	PCT-US91-02186-6	Sequence 6, Appl
32	112	97.4	155	1	US-07-959-369-6	Sequence 6, Appl
33	112	97.4	155	1	US-08-023-757-2	Sequence 2, Appl
34	112	97.4	155	1	US-08-023-757-4	Sequence 4, Appl
35	112	97.4	155	1	US-07-842-177A-1	Sequence 1, Appl
36	112	97.4	155	1	US-08-177-502-2	Sequence 2, Appl
37	112	97.4	155	1	US-08-177-502-4	Sequence 4, Appl
38	112	97.4	155	1	US-08-439-725A-10	Sequence 10, Appl
39	112	97.4	155	1	US-08-325-632-1	Sequence 1, Appl
40	112	97.4	155	1	US-08-462-169B-10	Sequence 10, Appl
41	112	97.4	155	2	US-08-867-471-10	Sequence 10, Appl
42	112	97.4	155	2	US-08-438-439C-14	Sequence 14, Appl
43	112	97.4	155	2	US-08-951-822-28	Sequence 28, Appl
44	112	97.4	155	3	US-09-103-079-10	Sequence 10, Appl
45	112	97.4	155	3	5514566-8	Patent No. 5514566

ALIGNMENTS

RESULT 1
US-07-830-330-9
; Sequence 9, Application US/07830330
; Patent No. 5288704
; GENERAL INFORMATION:
; APPLICANT: Ungherli, Domenico
; APPLICANT: Garciano, Luisa
; APPLICANT: Battistini, Carlo
; APPLICANT: Carmignati, Paolo
; APPLICANT: Mazzeo, Guy
; TITLE OF INVENTION: SYNERGISTIC COMPOSITION COMPRISING A
; TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR AND A SULFATED POLYSACCHARIDE.
; TITLE OF INVENTION: FOR USE AS ANTIVIRAL AGENT
; NUMBER OF SEQUENCES: 15
; CORRESPONDENCE ADDRESSES:
; ADDRESSEE: OBLON, SPIVAK, MCLELLAND, MAIER & NEUSTADT,
; ADDRESS: 1755 Jefferson Davis Highway, Fourth Floor
; CITY: Arlington
; STATE: Virginia
; ZIP: 22202
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/830,330
; FILING DATE: 19920420
; CLASSIFICATION: 424
; ATTORNEY/AGENT INFORMATION:
; NAME: OBLON, NO. 5288704man F.
; REGISTRATION NUMBER: 24,618
; REFERENCE/DOCKET NUMBER: 769-230-0
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (703)521-4500
; TELEFAX: (703)486-2347
; TELEX: 248855 OPAT UR
; INFORMATION FOR SEQ ID NO: 9:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 24 amino acids
; TYPE: AMINO ACID
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; FRAGMENT TYPE: internal
; US-07-830-330-9
Query Match 100.0%; Score 115; DB 1; Length 24;
Best Local Similarity 100.0%; Pred. No. 1.9e-10;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNNTYRSRKYSSWYALKR 21
 Db 4 SNNNTYRSRKYSSWYALKR 24

RESULT 2
 US-07-830-330-8
 ; Sequence 8, Application US/07830330
 ; Patent No. 5288704
 ; GENERAL INFORMATION:

APPLICANT: Ungheri, Domenico
 APPLICANT: Garofano, Luisa
 APPLICANT: Battistini, Carlo
 APPLICANT: Carmignati, Paolo
 TITLE OF INVENTION: SYNERGISTIC COMPOSITION COMPRISING A
 TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR AND A SULFATED POLYSACCHARIDE,
 TITLE OF INVENTION: FOR USE AS ANTI-VIRAL AGENT
 NUMBER OF SEQUENCES: 15
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: OBLON, SPIVAK, MCCLELLAND, MATER & NEUSTADT,
 ADDRESSEE: P.C.
 STREET: 1755 Jefferson Davis Highway, Fourth Floor
 CITY: Arlington
 STATE: Virginia
 ZIP: 22202

COMPUTER READABLE FORM:
 MEDIUM TYPE: Floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: Patent Release #1.0, Version #1.25
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/07/830.330
 FILING DATE: 19920420
 CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:
 NAME: Oblon, No. 5288704man F.
 REGISTRATION NUMBER: 24,618
 REFERENCE/DOCKET NUMBER: 769-230-0
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: (703)521-4500
 TELEFAX: (703)486-2347
 TELEEX: 248855 OPAT UR

INFORMATION FOR SEQ ID NO: 8:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 28 amino acids
 TYPE: AMINO ACID
 TOPOLOGY: linear
 MOLECULE TYPE: peptide
 FRAGMENT TYPE: internal
 US-07-830-330-8

Query Match 100.0%; Score 115; DB 1; Length 28;
 Best Local Similarity 100.0%; Pred. No. 2.3e-10;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNNTYRSRKYSSWYALKR 21
 Db 8 SNNNTYRSRKYSSWYALKR 28

RESULT 3
 US-08-187-780-3

; Sequence 3, Application US/08187780
 ; Patent No. 5459250
 ; GENERAL INFORMATION:

APPLICANT: CLAUDIO BASILICO
 APPLICANT: DANIELA TALAMICO
 TITLE OF INVENTION: MAMMALIAN GROWTH FACTOR
 NUMBER OF SEQUENCES: 8
 CORRESPONDENCE ADDRESS:

ADDRESSEE: Darby & Darby P.C.
 STREET: 805 Third Avenue
 CITY: New York
 STATE: New York
 COUNTRY: USA
 ZIP: 10022

COMPUTER READABLE FORM:
 MEDIUM TYPE: Diskette, 5.25 inch,
 MEDIUM TYPE: 360 Kb storage
 COMPUTER: IBM or IBM-compatible
 OPERATING SYSTEM: PC/MS-DOS
 SOFTWARE: Wordperfect

CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/187,780
 FILING DATE: January 25, 1994
 CLASSIFICATION: 530
 PRIOR APPLICATION DATA:

APPLICATION NUMBER: 07/901,705
 FILING DATE: June 22, 1992
 APPLICATION NUMBER: 07/806,771
 FILING DATE: December 6, 1991
 APPLICATION NUMBER: 07/177,506
 FILING DATE: April 4, 1988
 APPLICATION NUMBER: 07/062,925
 FILING DATE: June 16, 1987

ATTORNEY/AGENT INFORMATION:
 NAME: Howard M. Frankfort
 REGISTRATION NUMBER: 32,613
 REFERENCE/DOCKET NUMBER: 5986/13586-US3
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: (212) 527-7700
 TELEFAX: (212) 753-6237

INFORMATION FOR SEQ ID NO: 3:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 145
 TYPE: amino acid
 STRANDEDNESS: single
 TOPOLOGY: linear
 MOLECULE TYPE: Protein
 DESCRIPTION: Protein

NAME/KEY:
 LOCATION:
 IDENTIFICATION METHOD:
 OTHER INFORMATION: This sequence,
 OTHER INFORMATION: corresponding to bovine basic fibroblast
 OTHER INFORMATION: growth factor, can be found in Table 1,
 OTHER INFORMATION: page 9, lines 9, 14, and 19, in the
 PUBLICATION INFORMATION:
 AUTHORS:
 TITLE:

JOURNAL:
 VOLUME:
 ISSUE:
 PAGES:
 DATE:
 DOCUMENT NUMBER:
 FILING DATE:
 PUBLICATION DATE:
 RELEVANT RESIDUES IN SEQ ID NO: 1-145

US-08-187-780-3

Query Match 100.0%; Score 115; DB 1; Length 145;
 Best Local Similarity 100.0%; Pred. No. 1.2e-09;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNNTYRSRKYSSWYALKR 21
 Db 100 SNNNTYRSRKYSSWYALKR 120

RESULT 4
US-08-478-485-3
Sequence 3, Application US/08478485
Patent No. 5883071
GENERAL INFORMATION:
APPLICANT: CLAUDIO BASILICO
APPLICANT: DANIELA TALARICO
TITLE OF INVENTION: MAMMALIAN GROWTH FACTOR
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
ADDRESSEE: Darby & Darby P.C.
STREET: 805 Third Avenue
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10022
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy Diskette, 3+ inch,
MEDIUM TYPE: 1.44 MB storage
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC/MS-DOS
SOFTWARE: WordPerfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/478,485
FILING DATE: Concurrently Herewith
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/187,780
FILING DATE: January 25, 1994
APPLICATION NUMBER: 07/901,705
FILING DATE: June 22, 1992
APPLICATION NUMBER: 07/806,771
FILING DATE: December 5, 1991
APPLICATION NUMBER: 07/177,506
FILING DATE: April 4, 1988
APPLICATION NUMBER: 07/062,925
FILING DATE: June 16, 1987
ATTORNEY/AGENT INFORMATION:
NAME: Joseph R. Robinson
REGISTRATION NUMBER: 33,448
REFERENCE/DOCKET NUMBER: 5986/13586-US6
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 527-7700
TELEFAX: (212) 753-6237
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 145
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: Protein
DESCRIPTION: Protein
FEATURE:
NAME/KEY:
LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION: This sequence,
OTHER INFORMATION: corresponding to bovine basic fibroblast
OTHER INFORMATION: growth factor, can be found in Table 1,
OTHER INFORMATION: page 9, lines 9, 14, and 19, in the
PUBLICATION INFORMATION:
AUTHORS:
TITLE:
JOURNAL:
VOLUME:
ISSUE:
PAGES:
DATE:
DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO: 1-145

US-08-478-485-3
Query Match 100.0%; Score 115; DB 2; Length 145;
Best Local Similarity 100.0%; Pred. No. 1.2e-09;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 SNNNTYRSRKYSWYVALKR 21
DB 100 SNNNTYRSRKYSWYVALKR 120
RESULT 5
5464943-26
Patent No. 5464943
APPLICANT: SENO, MASAHARU; SASADA, REIKO; IGARASHI, KOICHI
TITLE OF INVENTION: DNA ENCODING GLYCOSYLATED FGF AND
PRODUCTION THEREOF
NUMBER OF SEQUENCES: 42
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/275,635
FILING DATE: 15-JUL-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 7,089
FILING DATE: 19-JAN-1993
APPLICATION NUMBER: 511,469
FILING DATE: 20-APR-1990
SEQ ID NO: 26
LENGTH: 146
5464943-26
Query Match 100.0%; Score 115; DB 5; Length 146;
Best Local Similarity 100.0%; Pred. No. 1.2e-09;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 SNNNTYRSRKYSWYVALKR 21
DB 100 SNNNTYRSRKYSWYVALKR 120
RESULT 6
PCT-US91-02186-4
Sequence 4, Application PCT/US9102186
GENERAL INFORMATION:
APPLICANT: California Biotechnology Inc.
APPLICANT: Inventors: Thompson, Stewart A.
TITLE OF INVENTION: High Level Expression of Basic
TITLE OF INVENTION: Fibroblast Growth Factor Having a Homogeneous
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Irell & Manella
STREET: 545 Middlefield Road, Suite 200
CITY: Menlo Park
STATE: California
COUNTRY: USA
ZIP: 94025-3471
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US91/02186
FILING DATE: 19910702
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Murashige, Kate H.
REGISTRATION NUMBER: 29,959
REFERENCE/DOCKET NUMBER: 1900-0275.41
TELECOMMUNICATION INFORMATION:

TELEPHONE: 415-327-7250
 INFORMATION FOR SEQ ID NO: 4:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 155 amino acids
 TYPE: AMINO ACID
 TOPOLOGY: linear
 MOLECULE TYPE: protein
 PCT: US91-02186-4

Query Match 100.0%; Score 115; DB 4; Length 155;
 Best Local Similarity 100.0%; Pred. No. 1.3e-09;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSRKYSSWYVALKR 21
 |||
 DB 109 SNNYNTYRSRKYSSWYVALKR 129

RESULT 7
 5514566-6

Patent No. 5514566
 APPLICANT: FIDDES, JOHN C.; ABRAHAM, JUDITH A.
 TITLE OF INVENTION: METHODS OF PRODUCING RECOMBINANT
 FIBROBLASTS GROWTH FACTORS
 NUMBER OF SEQUENCES: 21
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/417,022
 FILING DATE: 05-APR-1995
 PRIOR APPLICATION DATA:
 APPLICATION NUMBER: 809,163
 FILING DATE: 16-DEC-1985
 APPLICATION NUMBER: 775,521
 FILING DATE: 12-SEP-1985
 SEQ ID NO: 6:
 LENGTH: 155
 5514566-6

Query Match 100.0%; Score 115; DB 5; Length 155;
 Best Local Similarity 100.0%; Pred. No. 1.3e-09;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSRKYSSWYVALKR 21
 |||
 DB 109 SNNYNTYRSRKYSSWYVALKR 129

RESULT 8
 US-08-100-744-4

Sequence 4, Application US/08100744
 Patent No. 5563046
 GENERAL INFORMATION:
 APPLICANT: MASCARENHAS, DESMOND
 APPLICANT: ZHANG, SUNNY
 APPLICANT: OLSEN, PAMELA
 APPLICANT: OLSEN, DAVID
 APPLICANT: CARRILLO, PEDRO A.
 TITLE OF INVENTION: POLYPEPTIDE FUSIONS TO
 NUMBER OF SEQUENCES: 12
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: MORRISON & FOERSTER
 STREET: 755 Page Mill Road
 CITY: Palo Alto
 STATE: California
 COUNTRY: USA
 ZIP: 94304-1018
 COMPUTER READABLE FORM:
 MEDIUM TYPE: Floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/100,744
 FILING DATE: 02-AUG-1993
 CLASSIFICATION: 435
 ATTORNEY/AGENT INFORMATION:
 NAME: LUTHER, BARBARA J.
 REGISTRATION NUMBER: 33,954
 REFERENCE/DOCKET NUMBER: 22095-20275.00
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: (415) 813-5600
 TELEFAX: (415) 494-0792
 TELEX: 706141
 INFORMATION FOR SEQ ID NO: 4:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 132 amino acids
 TYPE: amino acid
 STRANDEDNESS: single
 TOPOLOGY: linear
 US-08-100-744-4

Query Match 97.4%; Score 112; DB 1; Length 132;
 Best Local Similarity 95.2%; Pred. No. 2.9e-09;
 Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSRKYSSWYVALKR 21
 |||
 DB 86 SNNYNTYRSRKYSSWYVALKR 106

RESULT 9
 US-08-284-784-4

Sequence 4, Application US/08284784
 Patent No. 56291721
 GENERAL INFORMATION:
 APPLICANT: MASCARENHAS, DESMOND
 APPLICANT: ZHANG, YANGL
 APPLICANT: OLSEN, PAMELA S.
 APPLICANT: OLSEN, DAVID R.
 APPLICANT: CARRILLO, PEDRO A.
 TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES
 NUMBER OF SEQUENCES: 44
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: MORRISON & FOERSTER
 STREET: 755 Page Mill Road
 CITY: Palo Alto
 STATE: California
 COUNTRY: USA
 ZIP: 94304-1018
 COMPUTER READABLE FORM:
 MEDIUM TYPE: Floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: Patentin Release #1.0, Version #1.25
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/284,784
 FILING DATE: 02-AUG-1994
 CLASSIFICATION: 530
 ATTORNEY/AGENT INFORMATION:
 NAME: PARK, FREDIE K.
 REGISTRATION NUMBER: 35,636
 REFERENCE/DOCKET NUMBER: 22095-20275.20
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: (415) 813-5600
 TELEFAX: (415) 494-0792
 TELEX: 706141
 INFORMATION FOR SEQ ID NO: 4:
 SEQUENCE CHARACTERISTICS:
 LENGTH: 132 amino acids
 TYPE: amino acid
 STRANDEDNESS: single
 TOPOLOGY: linear

US-08-284-784-4

Query Match 97.4%; Score 112; DB 1; Length 132;

Best Local Similarity 95.2%; Pred. No. 2.9e-09; Indels 0; Gaps 0;

Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYTYRSRKYTSWYVALKR 21

DB 86 SNNYTYRSRKYTSWYVALKR 106

RESULT 10

US-08-854-811-4

Sequence 4; Application US/08854811

Patent No. 5914254

GENERAL INFORMATION:

APPLICANT: Mascarenhas, Desmond

APPLICANT: Zhang, Yang

APPLICANT: Olsen, Pamela S.

APPLICANT: Olsen, David R.

TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES

TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER

NUMBER OF SEQUENCES: 49

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORRISON & FOERSTER

STREET: 755 PAGE MILL ROAD

CITY: Palo Alto

STATE: CA

COUNTRY: USA

ZIP: 94304-1018

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette

COMPUTER: IBM Compatible

OPERATING SYSTEM: Windows

SOFTWARE: FASTED for Windows Version 2.0b

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/854,811

FILING DATE: 12-MAY-1997

CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/284,784

FILING DATE: 02-AUG-1994

APPLICATION NUMBER: 08/100,744

FILING DATE: 02-AUG-1993

ATTORNEY/AGENT INFORMATION:

NAME: Buffinger, Nicholas S

REGISTRATION NUMBER: 39,124

REFERENCE/DOCKET NUMBER: 22095-20275.21

TELECOMMUNICATION INFORMATION:

TELEPHONE: 650-813-5600

TELEFAX: 650-494-0792

TELEX: 706141

INFORMATION FOR SEQ ID NO: 4:

SEQUENCE CHARACTERISTICS:

LENGTH: 132 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-854-811-4

Query Match 97.4%; Score 112; DB 2; Length 132;

Best Local Similarity 95.2%; Pred. No. 2.9e-09; Indels 0; Gaps 0;

Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYTYRSRKYTSWYVALKR 21

DB 86 SNNYTYRSRKYTSWYVALKR 106

RESULT 11

PCT-US90-06962-1

Sequence 1; Application PC/TUS9006962

GENERAL INFORMATION:

APPLICANT: Baird, J. A.

APPLICANT: Hajjar, David P.

TITLE OF INVENTION: Treatment of HSV

NUMBER OF SEQUENCES: 2

CORRESPONDENCE ADDRESS:

ADDRESSEE: Fitch, Even, Tabin & Flannery

STREET: 135 South LaSalle Street, Suite 900

CITY: Chicago

STATE: Illinois

COUNTRY: USA

ZIP: 60603

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.24

CURRENT APPLICATION DATA:

APPLICATION NUMBER: PCT/US90/06962

FILING DATE: 19901129

CLASSIFICATION: Au 186/C1 424

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 07/443,939

FILING DATE: 30-NOV-1989

ATTORNEY/AGENT INFORMATION:

NAME: Schumann, James J.

REGISTRATION NUMBER: 20856

REFERENCE/DOCKET NUMBER: 50742

TELECOMMUNICATION INFORMATION:

TELEPHONE: (619)552-1311

TELEFAX: (619)552-0095

INFORMATION FOR SEQ ID NO: 1:

SEQUENCE CHARACTERISTICS:

LENGTH: 157 amino acids

TYPE: AMINO ACID

TOPOLOGY: linear

MOLECULE TYPE: protein

PCT-US90-06962-1

Query Match 97.4%; Score 112; DB 4; Length 140;

Best Local Similarity 95.2%; Pred. No. 3.1e-09; Indels 0; Gaps 0;

Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYTYRSRKYTSWYVALKR 21

DB 111 SNNYTYRSRKYTSWYVALKR 131

RESULT 12

US-08-231-894A-11

Sequence 11; Application US/08231894A

Patent No. 5851990

GENERAL INFORMATION:

APPLICANT: FUTISHIMA, AKIRA

APPLICANT: FUKUDA, TSUNEHIRO

TITLE OF INVENTION: BGF MUTIN AND ITS PRODUCTION

NUMBER OF SEQUENCES: 15

CORRESPONDENCE ADDRESS:

ADDRESSEE: DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS

STREET: 130 WATER STREET

CITY: BOSTON

STATE: MASSACHUSETTS

COUNTRY: US

ZIP: 02109

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette

COMPUTER: IBM Compatible

OPERATING SYSTEM: DOS

SOFTWARE: FASTSEQ Version 1.5
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/231,894A
FILING DATE: 22-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/873907
FILING DATE: 24-APR-1992
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 097655-1991
FILING DATE: 26-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 066381-1992
FILING DATE: 24-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: RESNICK, DAVID S.
REGISTRATION NUMBER: 34235
REFERENCE/DOCKET NUMBER: 41769-FWC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 523-3400
TELEFAX: (617) 523-6440
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: internal
ORIGINAL SOURCE:
US-08-231-894A-11

Query Match 97.4%; Score 112; DB 2; Length 146;
Best Local Similarity 95.2%; Pred. No. 3.2e-09;
Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSKRYTSWYVALKR 21
Db 100 SNNYNTYRSKRYTSWYVALKR 120

RESULT 13
US-08-231-894A-13
Sequence 13, Application US/08231894A
Patent No. 5851990
GENERAL INFORMATION:
APPLICANT: FUJISHIMA, AKIRA
APPLICANT: FUKUDA, TSUNEHIKO
TITLE OF INVENTION: BRGF MOTEIN AND ITS PRODUCTION
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
STREET: 130 WATER STREET
CITY: BOSTON
STATE: MASSACHUSETTS
COUNTRY: US
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FASTSEQ Version 1.5
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/231,894A
FILING DATE: 22-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/873907

FILING DATE: 24-APR-1992
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 097655-1991
FILING DATE: 26-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 066381-1992
FILING DATE: 24-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: RESNICK, DAVID S.
REGISTRATION NUMBER: 34235
REFERENCE/DOCKET NUMBER: 41769-FWC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 523-3400
TELEFAX: (617) 523-6440
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: internal
ORIGINAL SOURCE:
US-08-231-894A-13

Query Match 97.4%; Score 112; DB 2; Length 146;
Best Local Similarity 95.2%; Pred. No. 3.2e-09;
Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSKRYTSWYVALKR 21
Db 100 SNNYNTYRSKRYTSWYVALKR 120

RESULT 14
US-08-231-894A-14
Sequence 14, Application US/08231894A
Patent No. 5851990
GENERAL INFORMATION:
APPLICANT: FUJISHIMA, AKIRA
APPLICANT: FUKUDA, TSUNEHIKO
TITLE OF INVENTION: BRGF MOTEIN AND ITS PRODUCTION
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
STREET: 130 WATER STREET
CITY: BOSTON
STATE: MASSACHUSETTS
COUNTRY: US
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FASTSEQ Version 1.5
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/231,894A
FILING DATE: 22-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/873907
FILING DATE: 24-APR-1992
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 097655-1991
FILING DATE: 26-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 066381-1992

FILING DATE: 24-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: RESNICK, DAVID S.
REGISTRATION NUMBER: 34235
REFERENCE/DOCKET NUMBER: 41769-FWC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 523-3400
TELEFAX: (617) 523-6440
INFORMATION FOR SEQ. ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: Internal
ORIGINAL SOURCE:
US-08-231-894A-14

Query Match 97.4%; Score 112; DB 2; Length 146;
Best Local Similarity 95.2%; Pred. No. 3.2e-09;
Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
QY 1 SNNYNTYRSRKYSSWYVALKR 21
DB 100 SNNYNTYRSRKYSSWYVALKR 120

RESULT 15
US-08-231-894A-15
Sequence 15, Application US/08231894A
Patent No. 5851990
GENERAL INFORMATION:
APPLICANT: FUJISHIMA, AKIRA
APPLICANT: FUKUDA, TSUNEHIRO
TITLE OF INVENTION: BCGF MOTENIN AND ITS PRODUCTION
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
STREET: 130 WATER STREET
CITY: BOSTON
STATE: MASSACHUSETTS
COUNTRY: US
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FASTSEQ Version 1.5
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/231, 894A
FILING DATE: 22-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/873907
FILING DATE: 24-APR-1992
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 097655-1991
FILING DATE: 26-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 066381-1992
FILING DATE: 24-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: RESNICK, DAVID S.
REGISTRATION NUMBER: 34235
REFERENCE/DOCKET NUMBER: 41769-FWC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 523-3400

TELEFAX: (617) 523-6440
INFORMATION FOR SEQ. ID NO: 15:
SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: Internal
ORIGINAL SOURCE:
US-08-231-894A-15

Query Match 97.4%; Score 112; DB 2; Length 146;
Best Local Similarity 95.2%; Pred. No. 3.2e-09;
Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
QY 1 SNNYNTYRSRKYSSWYVALKR 21
DB 100 SNNYNTYRSRKYSSWYVALKR 120

Search completed: November 9, 2000, 15:33:00
Job time: 241 sec

Thu Nov 9 15:49:30 2000

us-09-266-543-2.ra1

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:37 ; Search time 94.87 Seconds

(without alignments)
4.686 Million cell updates/sec

Title: US-09-266-543-3

Sequence: 1 CRTKPKCKDKPRR 13

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues

Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database :

A.Geneseq_36:*

1: /SIDS1/gcgdata/geneseq/geneseq/AA1980.DAT:*

2: /SIDS1/gcgdata/geneseq/geneseq/AA1981.DAT:*

3: /SIDS1/gcgdata/geneseq/geneseq/AA1982.DAT:*

4: /SIDS1/gcgdata/geneseq/geneseq/AA1983.DAT:*

5: /SIDS1/gcgdata/geneseq/geneseq/AA1984.DAT:*

6: /SIDS1/gcgdata/geneseq/geneseq/AA1985.DAT:*

7: /SIDS1/gcgdata/geneseq/geneseq/AA1986.DAT:*

8: /SIDS1/gcgdata/geneseq/geneseq/AA1987.DAT:*

9: /SIDS1/gcgdata/geneseq/geneseq/AA1988.DAT:*

10: /SIDS1/gcgdata/geneseq/geneseq/AA1989.DAT:*

11: /SIDS1/gcgdata/geneseq/geneseq/AA1990.DAT:*

12: /SIDS1/gcgdata/geneseq/geneseq/AA1991.DAT:*

13: /SIDS1/gcgdata/geneseq/geneseq/AA1992.DAT:*

14: /SIDS1/gcgdata/geneseq/geneseq/AA1993.DAT:*

15: /SIDS1/gcgdata/geneseq/geneseq/AA1994.DAT:*

16: /SIDS1/gcgdata/geneseq/geneseq/AA1995.DAT:*

17: /SIDS1/gcgdata/geneseq/geneseq/AA1996.DAT:*

18: /SIDS1/gcgdata/geneseq/geneseq/AA1997.DAT:*

19: /SIDS1/gcgdata/geneseq/geneseq/AA1998.DAT:*

20: /SIDS1/gcgdata/geneseq/geneseq/AA1999.DAT:*

21: /SIDS1/gcgdata/geneseq/geneseq/AA2000.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	69	88.5	146	13	R22348
2	69	88.5	146	13	R27354
3	69	88.5	146	19	W53640
4	69	88.5	146	21	Y57029
5	69	88.5	146	21	Y57029
6	69	88.5	146	21	Y57029
7	69	88.5	146	21	Y57029
8	69	88.5	146	21	Y57029
9	69	88.5	146	21	Y57029
10	69	88.5	146	21	Y57029
11	69	88.5	146	21	Y57029
12	69	88.5	146	21	Y57029

13	53	67.9	147	19	W62524	Amino acid sequenc
14	53	67.9	147	21	Y90402	VEGF encoded by cl
15	53	67.9	147	21	Y90412	Amino acid sequenc
16	53	67.9	147	21	Y83033	Human vascular end
17	53	67.9	147	21	Y83033	VEGF121 Cys+4. Ho
18	53	67.9	148	17	R94032	VEGF121 Cys+2. Ho
19	53	67.9	377	17	W00586	SAP(GI45er)12VEGF1
20	53	67.9	384	17	R94071	SAP(GI45er)12VEGF1
21	53	67.9	399	17	W00589	SAP(GI45er)12VEGF1
22	53	67.9	506	17	W00588	SAP-AlaMet-VEGF121
23	53	67.9	514	17	W00590	SAP-AlaMet-VEGF121
24	53	67.9	514	17	R94073	SAP(GI45er)12VEGF1
25	53	67.9	524	17	W00594	SAP(GI45er)12VEGF1
26	53	67.9	147	20	Y07724	Human VEGF protein
27	52	66.7	120	12	R10916	Bovine vascular en
28	51.5	66.0	120	12	R10916	Bovine VEGF-120.
29	51.5	66.0	120	14	R38916	Parapox virus VEGF
30	48.5	62.2	147	20	Y33437	Human vascular per
31	40	51.3	12	19	W74693	Human vascular end
32	40	51.3	12	19	W53449	Human vascular end
33	40	51.3	12	21	Y57679	Human vascular end
34	40	51.3	12	21	Y57679	Human vascular end
35	40	51.3	12	21	Y57679	Human vascular end
36	40	51.3	441	17	R94538	Drosophila Src28C
37	39	50.0	20	14	R36680	Guinea pig VPF C-t
38	39	50.0	27	21	Y43722	Amino acid sequenc
39	39	50.0	164	12	R10911	Bovine vascular en
40	39	50.0	164	14	R38920	Bovine VEGF-164.
41	39	50.0	165	12	R10917	Human vascular end
42	39	50.0	165	14	R38921	Human VEGF-165. R
43	39	50.0	165	18	W1086	Vascular endotheli
44	39	50.0	165	18	W1086	Vascular endotheli
45	39	50.0	165	18	W31087	Vascular endotheli

ALIGNMENTS

RESULT 1	
R22348	R22348 standard; Protein; 146 AA.
XX	
AC	R22348;
XX	
DT	29-JUL-1992 (first entry)
XX	
DE	Alternative form of VEGF mature A-subunit with 120 amino acids.
XX	
KW	Rat glioma cell: GS-9L; conditioned medium; heterodimer; VEGF-II;
KW	homodimer; mitogenesis; vascular repair; blood vessel implant;
KW	polymerase chain reaction; alternative splicing.
XX	
OS	Rattus.
XX	
FH	Key
FT	Peptide
FT	Protein
FT	Location/Qualifiers
FT	1..26
FT	/label= signal
FT	/label= VEGF_A-subunit
FT	/note= "120 amino acids long"
XX	
PN	EP476983-A.
XX	
PD	25-MAR-1992.
XX	
PF	18-SEP-1991; 31EP-0308489.
XX	
PR	21-SEP-1990; 90US-0586640.
XX	
PR	21-SEP-1990; 90US-0586638.
XX	
PA	(MERI) MERCK & CO INC.
XX	
PI	Bayne ML, Conn GL, Thomas KA;

XX WPI: 1992-098641/13.
 DR N-PSDB; Q23039.
 XX
 PT Vascular endothelial cell growth factor II - used as coating for
 XX artificial blood vessels or to promote tissue repair
 PS Example 9; Page 14 and Fig 4; 38pp; English.
 XX
 CC Multiple cDNAs encoding alternative forms of the VEGF A-subunit
 CC were amplified using PCR primers as in Q23049 and Q23050. Three
 CC sets of clones were identified. Clone #12 encoded the 164 amino acid
 CC secreted form of VEGF A-subunit (see R22347). Clone #14 has a 135 bp
 CC deletion and thus encodes a 120 amino acid form and Clone #16 has a
 CC 72bp insertion and encodes a 188 amino acid mature protein (R22351).
 CC The deleted region lies between the second base of the Asn140 codon
 CC and the third base of the Arg184 codon. The 120 amino acid mature
 CC protein has Asn140 converted to Lys140.
 CC See also Q23038-Q23059.
 XX
 SQ Sequence 146 AA;

Query Match 88.5%; Score 69; DB 13; Length 146;
 Best Local Similarity 100.0%; Pred. No. 0.0031;
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 2 RTKPKCDKPRR 13
 Db 135 rtkpkcdkpr 146
 |||||

RESULT 2
 R27354 R27354 standard; Protein: 146 AA.
 XX
 AC R27354;
 XX
 DT 25-FEB-1993 (first entry)
 XX
 DE Sequence of vascular endothelial cell growth factor VEGF A
 DE 146 amino acid residue subunit.
 XX
 KW Vascular development; mitogen; blood vessel;
 KW vascular endothelial growth factor; neovascularisation.
 XX
 OS Rattus.
 XX
 PN EP506477-A.
 XX
 PD 30-SEP-1991.
 XX
 PF 27-MAR-1992; 92EP-0302750.
 XX
 PR 28-MAR-1991; 91US-0676436.
 XX
 FA (MERI) MERCK & CO INC.
 XX
 PI Bayne ML, Thomas KA;
 XX
 DR WPI: 1992-325745/40.
 DR N-PSDB; Q28953.
 XX
 PT Vascular endothelial cell growth factor sub-units - which stimulate
 PT vascular endothelial cell growth, used for inducing tissue repair
 XX and growth.
 XX
 PS Disclosure: Fig 4; 61pp; English.
 CC The full length coding region of the A subunit or monomer of VEGF
 CC is determined from three sets of overlapping cDNA clones. Degenerate
 CC oligo. primers based on the amino acid sequences Phe-Met-Asp-Val-Tyr-Gln from polypeptide 142 (residues 42-47) and

CC Cys-Lys-Asn-Thr-Asp from polypeptide 138 (residues 164-168) were used
 CC to PCR amplify the central region of the cDNA for VEGF A chain.
 CC A single band migrating at 420 bp was gel purified, digested with SalI,
 CC ligated into pGEM3Zf(+) and sequenced. The nucleotide sequence
 CC obtained (p438) was used to design antisense and sense PCR primers
 CC to amplify the 5' and 3' ends of the cDNA. These 5' and 3' clones
 CC are denoted p5-15 and pW3, respectively. In addition to the cDNA
 CC coding the 164 amino acid secreted form identified by protein
 CC sequencing, two alternatively spliced cDNAs encoding a 146 amino acid
 CC and a 214 amino acid forms are cloned and sequenced.
 XX
 SQ Sequence 146 AA;

Query Match 88.5%; Score 69; DB 13; Length 146;
 Best Local Similarity 100.0%; Pred. No. 0.0031;
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 2 RTKPKCDKPRR 13
 Db 135 rtkpkcdkpr 146
 |||||

RESULT 3
 W53640 W53640 standard; Protein: 146 AA.
 XX
 AC W53640;
 XX
 DT 30-JUL-1998 (first entry)
 XX
 DE Vascular endothelial growth factor II A subunit variant.
 XX
 KW Vascular endothelial cell growth factor; VEGF II; rat; glioma cell;
 KW mitogenesis; blood vessel growth; artificial blood vessel.
 XX
 OS Rattus sp.
 XX
 PN US5726152-A.
 XX
 PD 10-MAR-1998.
 XX
 PF 31-AUG-1994; 94US-0299185.
 XX
 PR 31-AUG-1994; 94US-0299185.
 PR 21-SEP-1990; 90US-0586638.
 PR 05-JAN-1993; 93US-0000834.
 XX
 FA (MERI) MERCK & CO INC.
 XX
 PI Bayne ML, Conn GL, Thomas KA;
 XX
 DR WPI: 1998-206007/18.
 XX
 PT Vascular endothelial growth factor proteins - having specified A and
 PT B sub-units
 XX
 PS Claim 1; Page -; 46pp; English.
 XX
 CC The present sequence represents a rat vascular endothelial growth factor
 CC II (VEGF II) A subunit variant with a conversion of Asn 140 to Lys 140,
 CC and the deletion of His 141 to Arg 184 from the wild-type given in
 CC W53639. The present invention describes: (1) a mammalian VEGF II protein
 CC comprising an A subunit from W53639, W53640 or W53641, and a B subunit
 CC from W53638, W53639 or the first 115-135 amino acids of W53638; and (2)
 CC a mammalian VEGF comprising a heterodimer or homodimer of B subunits.
 CC The growth factor is used for promoting vascular development and repair
 CC and for promoting tissue repair.
 CC N.B. The present sequence is not given in the specification but is
 CC derived from Fig 5 as stated in the claim.
 XX
 SQ Sequence 146 AA;

Query Match 88.5%; Score 69; DB 19; Length 146;
 Best Local Similarity 100.0%; Pred. No. 0.0031;
 Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 RTKPEKCDKPRR 13
 |||
 DB 135 rtkpekcdkpr 146

RESULT 4

ID Y57029 standard; Protein; 146 AA.

XX Y57029;

DT 15-FEB-2000 (first entry)

DE VEGFA 146 amino acid residue subunit sequence.

KM VEGF: vascular endothelial growth factor; A subunit; tissue growth;

XX vascular development; artificial blood vessel; repair; human.

OS Homo sapiens.

PN US5994300-A.

PD 30-NOV-1999.

PF 20-SEP-1993; 93US-0124259.

PR 28-MAR-1991; 91US-0676436.

PA (MERI) MERCK & CO INC.

PI Thomas KA, Bayne ML;

DR WPI: 2000-038268/03.

PS N-PSDB: 239827.

PT Purified and isolated vascular endothelial cell growth factor C subunit

XX for the induction of tissue repair or growth -

XX Disclosure; Fig 3; 58pp; English.

CC This is the amino acid sequence of a 146 amino acid residue A subunit of

CC vascular endothelial cell growth factor (VEGF). The invention relates to

CC a purified and isolated VEGF C subunit amino acid sequence Y57025. VEGF

CC exists in various microheterogeneous forms, and is useful for the

CC promotion of vascular development and repair. The invention also relates

CC to human VEGF heterodimers AC or BC and homodimer CC, where A, B and C

CC are subunit amino acid sequences. The VEGF AC, BC or CC amino acid

CC sequences can be used in a tissue repairing pharmaceutical composition.

CC The novel growth factors are useful for the production or coverage of

CC artificial blood vessels with vascular endothelial cell. They are also

CC useful for the induction of tissue growth and repair.

XX Sequence 146 AA;

Query Match 88.5%; Score 69; DB 21; Length 146;

Best Local Similarity 100.0%; Pred. No. 0.0031;

Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 RTKPEKCDKPRR 13
 |||
 DB 135 rtkpekcdkpr 146

RESULT 5

ID Y23944 standard; peptide; 12 AA.

AC Y23944;

DT 21-SEP-1999 (first entry)

DE Peptide derived from vascular endothelial growth factor (VEGF) 121.

XX Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.

OS Homo sapiens.

PN JP11178593-A.

PD 06-JUL-1999.

PF 24-DEC-1997; 97JP-0365972.

PR 24-DEC-1997; 97JP-0365972.

PA (FURE) FUJIREBIO KK.

DR WPI: 1999-437318/37.

PT New VEGF121-specific monoclonal antibody - useful for measuring

XX levels of VEGF121

PS Example 1; Page 5; 6pp; Japanese.

CC The present sequence is derived from vascular endothelial growth factor

CC (VEGF) 121. The specification describes a monoclonal antibody which

CC is specific to VEGF 121, and a hybridoma producing this antibody. The

CC antibody is used in a method for measuring the amount of VEGF 121

XX present in a sample.

XX Sequence 12 AA;

OY 2 RTKPEKCDKPRR 13
 |||
 DB 1 rrtgekcdkpr 12

Query Match 67.9%; Score 53; DB 20; Length 12;

Best Local Similarity 75.0%; Pred. No. 0.068;

Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

AC R1385;

DT 08-MAR-1991 (first entry)

DE Human vascular endothelial cell growth factor 121.

XX Bovine vascular endothelial cell growth factor; angiogenesis;

XX wound healing; VEGF; PDGF.

OS Bos taurus.

PN WO9102058-A.

PD 21-FEB-1991.

PF 27-JUL-1990; 90WO-US04227.

PR 14-DEC-1989; 39US-0450883.

PR 27-JUL-1989; 39US-0387545.

PA (CALB-) CALIF BIOTECHN INC.

PI Tischer ER, Abchamam, Fiddes JC, Mitchell RL;

DR WPI: 1991-073534/10.
DR N-PSDB; Q11099.

PT DNA encoding vascular endothelial cell growth factor - used for
PT producing the factor for angiogenesis and re-endothelialisation
PT in wound healing

PS Disclosure: Fig 7(1-2); 94pp; English.

CC The two forms of VEGF (Q10797 and Q10917) which arise through
CC different message splicing, have different properties. In partic.
CC hVEGF121 does not bind to heparin leaving more of the protein free to
CC bind to VEGF receptor and increase the half-life and distribution of
CC the protein in circulation, whereas hVEGF165 binds heparin strongly.
CC The product can be used for angiogenesis and re-endothelialisation
CC of inner vascular surfaces in wound healing, e.g. treatment of full-
CC thickness wounds such as dermal ulcers, venous ulcers and diabetic
CC ulcers, burns, in surgery, in balloon angioplasty and for the in
CC vitro culturing of endothelial cells. Hybrid growth factors of PDGF
CC and VEGF can exhibit a mitogenic profile between each factor and
CC e.g. preventing the growth of tumours.
CC VEGF analogues in which Cys residues are substid. are more stable.
CC See also Q10791-93; Q10796-97; Q10806-08 and Q11099.

CC Sequence 121 AA;

Query Match
Best Local Similarity 67.9%; Score 53; DB 12; Length 121;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
QY 2 RTPEKCDKPRR 13
DB 110 raregckdkprr 121
I : |||||

RESULT 7
R42607
ID R42607 standard; Protein; 121 AA.

AC R42607;

DT 28-OCT-1993 (first entry)

DE Human VEGF-121.

KW Angiogenesis; wound healing; mitogen; vascular endothelial cells;
KW Vascular Endothelial Cell Growth Factor; hVEGF-165; hVEGF-121.

OS Homo sapiens.

Key Location/Qualifiers

FT Misc-difference 7 /note= "inserted amino acid relative to hVEGF"

FT Misc-difference 115 /note= "Lys 115 of hVEGF-121 is replaced by 44
FT amino acids encoded by an alternatively
FT spliced exon in hVEGF-165 (see R38921)"

PN US5219739-A.

PD 15-JUN-1993.

PF 27-JUL-1989; 89US-0387545.

PR 27-JUL-1989; 89US-0387545.

PR 14-DEC-1989; 89US-0450883.

PR 27-JUL-1990; 90US-0559041.

PA (SCIO-) SCIOS NOV. INC.

PI Abraham JA, Fiddes JC, Mitchell RL, Tischer EG;

XX WPI: 1993-205303/25.
DR N-PSDB; Q49601.

PT Isolated DNA sequences, expression vectors and transformant cells
PT factor, for large scale prodn. of vascular endothelial cell growth
PT factor, for treating wounds in which neo-vascularisation is
PT required

PS Claim 3; Fig 7; 40pp; English.

CC The sequence of 044260 contains an open reading frame corresponding
CC to the 165 amino acid human vascular endothelial cell growth
CC factor (hVEGF-165, see R38921). Alternative splicing of the
CC sequence gives a shorter coding sequence which encodes the 121
CC amino acid hVEGF (see R42607). The full-length coding sequences can
CC be generated using PCR with human foetal vascular smooth muscle
CC poly-A+ RNA as template.

CC Sequence 121 AA;

Query Match
Best Local Similarity 67.9%; Score 53; DB 14; Length 121;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
QY 2 RTPEKCDKPRR 13
DB 110 raregckdkprr 121
I : |||||

RESULT 8
Y23943
ID Y23943 standard; peptide; 121 AA.

AC Y23943;

DT 21-SEP-1999 (first entry)

DE Amino acid sequence of vascular endothelial growth factor (VEGF) 121.

KW Vascular endothelial growth factor; VEGF; VEGF 121; monoclonal antibody.

OS Homo sapiens.

PN JP11178593-A.

PD 06-JUL-1999.

PF 24-DEC-1997; 97JP-0365972.

PR 24-DEC-1997; 97JP-0365972.

PA (FURE) FUJIREBIO KK.

DR WPI: 1999-437316/37.

PT New VEGF121-specific monoclonal antibody - useful for measuring
PT levels of VEGF121

PS Disclosure; Page 5; 6pp; Japanese.

CC The present sequence represents vascular endothelial growth factor
CC (VEGF) 121. The specification describes a monoclonal antibody which
CC is specific to VEGF 121, and a hybridoma producing this antibody. The
CC antibody is used in a method for measuring the amount of VEGF 121
CC present in a sample.

SQ Sequence 121 AA;

Query Match
Best Local Similarity 67.9%; Score 53; DB 20; Length 121;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTKPKCDKPRR 13
| : |||||
Db 110 rarekcdkpr 121

RESULT 9
Y08278
ID Y08278 standard; Protein; 121 AA.

AC Y08278;

DT 14-JUL-1999 (first entry)

DE Human growth factor protein fragment VEGF-A121.

KW Growth factor; human; dimer; cysteine knot; cellular inclusion body;
KW Pharmaceutical.

OS Homo sapiens.

PN DEL9748734-A1.

PD 06-MAY-1999.

PE 05-NOV-1997; 97DE-1048734.

PR 05-NOV-1997; 97DE-1048734.

PA (GBFB) GES BIOTECHNOLOGISCHE FORSCHUNG MBH.

PI Erdmann H, Kaerst U, Mueller C, Rinas U, Welch H;

DR WPI; 1999-278785/24.

PT Preparing active growth factor dimers from inclusion bodies in high
PT yield

PS Claim 14; Page 7; 14pp; German.

CC This invention describes the novel preparation of biologically active
CC dimers of recombinant human growth factors of the cysteine knot family
CC starting from cellular inclusion bodies. Such dimers are are useful in
CC pharmaceutical compositions and the method provides yields of 31-39.7%,
CC in examples, compared with about 10% for the conventional method (see
CC Biochemistry, 28 (1989) 2956). Y08278-Y08301 are human growth factor
CC protein fragments used in the method of the invention.

SQ Sequence 121 AA;

Query Match 67.9%; Score 53; DB 20; Length 121;
Best Local Similarity 75.0%; Pred. No. 0.54;

Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTKPKCDKPRR 13
| : |||||
Db 110 rarekcdkpr 121

RESULT 10
Y33438

ID Y33438 standard; Protein; 146 AA.

AC Y33438;

DT 13-DEC-1999 (first entry)

DE Parapox virus VEGF growth factor homologue protein fragment 5.

KW D1701; vascular endothelial growth factor; PPV-VEGF; angiogenesis;
KW endothelial cell proliferation; gene therapy; diagnostic; tissue repair;

KW Immunomodulation; dendritic cell differentiation; DNA vaccine.

OS Parapoxvirus.

PN DEL9813774-A1.

PD 30-SEP-1999.

PE 27-MAR-1998; 98DE-1013774.

PR 27-MAR-1998; 98DE-1013774.

PA (PLAC) MAX PLANCK GES FOERDERUNG WISSENSCHAFTEN.

PI Dehio C, Roettgen M, Reha H, Buettner M;

DR WPI; 1999-552202/47.

PT Homolog of human vascular endothelial growth factor useful for
PT stimulating endothelial cell proliferation, e.g. for stimulating
PT angiogenesis or tissue repair or for immunomodulation

PS Disclosure; Fig 2; 16pp; German.

CC This invention describes a novel polypeptide that is a parapox virus
CC homolog of human vascular endothelial growth factor (PPV-VEGF) and
CC stimulates endothelial cell proliferation. The products of the invention
CC have angiogenic activity. The polypeptide can be used in pharmaceutical
CC compositions for therapeutic or diagnostic use, e.g. for stimulating
CC angiogenesis or tissue repair or for immunomodulation, e.g. by
CC stimulating endothelial cell proliferation or inhibiting dendritic cell
CC differentiation. Nucleic acids encoding the polypeptide can be used in
CC pharmaceutical compositions for DNA vaccination or gene therapy. This
CC sequence represents a protein fragment of a parapox virus D1701 vascular
CC endothelial growth factor (VEGF) homologue.

SQ Sequence 146 AA;

Query Match 67.9%; Score 53; DB 20; Length 146;
Best Local Similarity 75.0%; Pred. No. 0.64;

Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTKPKCDKPRR 13
| : |||||
Db 135 rarekcdkpr 146

RESULT 11
R91075

ID R91075 standard; Protein; 147 AA.

AC R91075;

DT 14-MAY-1996 (first entry)

DE Human vascular endothelial growth factor-121, VEGF-121.

KW Conjugate; growth factor; FGF; cytotoxin; saproin; eye; regulation;
KW cell proliferation; psoriasis; pterygia; corneal clouding; cancer;
KW rheumatoid arthritis; vascular endothelial; fibroblast; epidermal;
KW heparin binding.

OS Homo sapiens.

FT Key Location/Qualifiers

FT Peptide 1..26 /label= sig_peptide

FT Protein 27..147 /label= VEGF-121

PN WO9524928-A2.

21-SEP-1995.

15-MAR-1995; 95WO-US03448.

15-MAR-1994; 94US-0213447.

15-MAR-1994; 94US-0213446.

(PRIZ-) PRIZM PHARM INC.

Bairst JA, Houston LL, Nova MP, Sosnowski BA;

WPI: 1995-336820/43.

N-PSDB: Q99080.

PT New conjugates of growth factor receptor ligand and targeted agent
 PT -Partic. DNA or cytoxin, used to control cell proliferation in
 PT the eye, e.g. to prevent growth of pterygia and corneal clouding
 XX
 XX Disclosure; Page 184-185, 204pp; English.

R91075-R91078 are human vascular endothelial growth factors (VEGFs).
 CC DNA encoding a VEGF can be used to create a fusion protein (FP).
 CC the CDNA of which includes a nucleic acid binding domain (NABD) and
 CC encodes a heparin binding growth factor, HEGF (e.g. VEGF, FGF, HBEGF),
 CC a protein synthesis inhibitor and opt. a linker imparting flexibility
 CC to the FP. The FP can be used to target a protein synthesis inhibitor,
 CC an antisense DNA sequence or an inhibitor of elongation factor 2, to a
 CC cell carrying a HEGF receptor. The conjugates of the invention are
 CC used to inhibit cell proliferation in cells carrying the particular
 CC growth factor receptor. A specific application is to prevent
 CC excessive proliferation of epithelial cells, fibroblasts and
 CC keratinocytes in the anterior eye after surgery, partic. to prevent
 CC recurrence of pterygia after surgical removal, closure of
 CC trabeculectomy after glaucoma surgery and corneal clouding after
 CC excimer laser treatment. Other conditions which may be treated include
 CC tumours, restenosis, psoriasis, Dupuytren's contracture, diabetic
 CC complications, Kaposi's sarcoma and rheumatoid arthritis.
 CC
 XX Sequence 147 AA;

Query Match 67.9%; Score 53; DB 16; Length 147;
 Best Local Similarity 75.0%; Pred. No. 0.64;
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTREKCDKRR 13
 Db 136 rargckdkprr 147

RESULT 12

R94001 standard; Protein; 147 AA.

AC R94001;

DT 09-OCT-1996 (first entry)

DE VEGF121.

Vascular endothelial growth factor; VEGF; human; conjugate; tumour; iris;
 VEGF-mediated pathophysiological condition;
 VEGF receptor; vascular proliferation; retinal;
 conjunctiva; vitreous humour; rheumatoid arthritis; skin cancer;
 varicose veins; gene therapy.

Homo sapiens.

MO9606641-A1.

07-MAR-1996.

29-AUG-1995; 95WO-US10973.

16-MAY-1995; 95US-0441979.

29-AUG-1994; 94US-0297961.

(PRIZ-) PRIZM PHARM INC.

Fleurbail GA, Freund E, Houston LL, Nova MP, Sosnowski BA;

WPI: 1996-160151/16.

N-PSDB: T17613.

PT Vascular endothelial cell growth factor (VEGF) conjugates - having
 PT VEGF linked to targeted agent, used for inhibiting proliferation of
 PT cells, e.g. for gene therapy
 XX
 XX Disclosure; Page 122-123; 193pp; English.

R94001-R94004, R94031, R94032, R94039 and R94040 represent vascular
 CC endothelial growth factors (VEGF). This sequence represents VEGF121.
 CC These sequences were used in VEGF conjugates of the invention. In the
 CC conjugates, VEGF (or fragments of it) are linked to a targeted agent
 CC (this can be via a linker sequence), so that the conjugate binds to a
 CC VEGF receptor. Cys-modified forms of VEGF are particularly suitable for
 CC chemical conjugation to linkers and targeted agents. The conjugates are
 CC used for inhibiting proliferation of cells bearing VEGF receptors. They
 CC can be used for treating a VEGF-mediated pathophysiological condition,
 CC including dermatological disorders with underlying vascular
 CC proliferation, solid tumours or an ophthalmic disorder of
 CC hyperproliferating blood vessels of the retina, iris, conjunctiva or
 CC vitreous humour. The conjugates can also be used for treating psoriasis,
 CC rheumatoid arthritis, skin cancers and other tumours, or varicose veins.
 CC They are also suitable for use in gene therapy.

Sequence 147 AA;

Query Match 67.9%; Score 53; DB 17; Length 147;
 Best Local Similarity 75.0%; Pred. No. 0.64;
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTREKCDKRR 13
 Db 136 rargckdkprr 147

RESULT 13

W62524 standard; Protein; 147 AA.

AC W62524;

DT 11-SEP-1998 (first entry)

DE Amino acid sequence of human VEGF-121.

Human; vascular endothelial growth factor; VEGF; production;
 nitric oxide; prostacyclin; treatment; prevention; intimal hyperplasia;
 blood vessel; essential hypertension; pulmonary arterial hypertension;
 PH; cor pulmonale; atherosclerosis; (re)stenosis; angioplasty;
 coronary bypass operation; anastomosis; endarterectomy.

Homo sapiens.

WO9820027-A2.

14-MAY-1998.

03-NOV-1997; 97WO-GB03015.

21-AUG-1997; 97GB-0017791.

01-NOV-1996; 96GB-0022852.

PR 09-MAY-1997; 97GB-0009494.
 XX
 PA (EURO-) EUROGENE LTD.
 XX
 PI Barker SGE, Martin JF, yla-Herttuaala S;
 XX WPI: 1998-286857/25.
 DR N-PSDB; V38450.
 XX
 PT Treatment or prevention of intimal hyperplasia by stimulating
 PT production of nitric oxide - by administration of vascular
 PT endothelial growth factor, useful for, e.g. treating or preventing
 PT intimal hyperplasia
 XX
 PS Claim 8; Page 54; 70pp; English.
 XX
 CC The present sequence represents human vascular endothelial growth factor
 CC 121 (VEGF-121). VEGF stimulates production of nitric oxide and
 CC prostacyclin. VEGF can therefore be used for treatment or prevention
 CC of intimal hyperplasia in a blood vessel. VEGF can be used for treating
 CC or preventing any condition responsive to in vivo stimulation of
 CC nitric acid and prostacyclin (especially essential hypertension,
 CC pulmonary arterial hypertension (PAH), cor pulmonale and
 CC atherosclerosis. VEGF is specifically used to control (re)stenosis,
 CC where caused by PAH or by a surgical procedure such as angioplasty,
 CC coronary bypass operation, anastomosis or endarterectomy.
 XX
 SQ Sequence 147 AA;
 XX
 Query Match 67.9%; Score 53; DB 19; Length 147;
 Best Local Similarity 75.0%; Pred. No. 0.64; Mismatches 2; Indels 0; Gaps 0;
 Matches 9; Conservative 1;
 QY 2 RTKPECKDKPRR 13
 I : |||||
 Db 136 raregckdkpr 147
 XX
 RESULT 14
 Y90402
 ID Y90402 standard; Protein: 147 AA.
 XX
 AC Y90402;
 XX
 DT 18-JUL-2000 (first entry)
 XX
 DE VEGF encoded by clone VEGF121, SEQ ID NO:1.
 XX
 KW Targeted gene delivery; fibroblast growth factor receptor;
 KW FGF-binding protein; nucleic acid binding protein;
 KW Receptor-Internalised ligand; cytotoxin; saporin; gene therapy;
 KW cytotoxic; antiproliferative; cancer; melanoma; diabetic retinopathy;
 KW rheumatoid arthritis; restenosis; Dupuytren's contracture; psoriasis;
 KW eczema; heparin-binding epidermal growth factor; HBEGF;
 KW vascular endothelial growth factor; VEGF.
 XX
 OS Unidentified.
 OS
 PN US6037329-A.
 XX
 PD 14-MAR-2000.
 XX
 PF 24-SEP-1996; 96US-0718904.
 XX
 PR 15-MAR-1994; 94US-0213446.
 PR 15-MAR-1994; 94US-0213447.
 PR 29-AUG-1994; 94US-0297961.
 PR 13-SEP-1994; 94US-0305771.
 PR 16-MAY-1995; 95US-0441979.
 XX
 PA (SELE-) SELECTIVE GENETICS INC.
 XX

PI Chandler LA, Sosnowski BA, Baird JA;
 XX
 DR WPI: 2000-292008/25.
 DR N-PSDB; A12853.
 XX
 PT Gene delivery system, useful for treating or preventing cancer and
 PT rheumatoid arthritis, comprises receptor-internalized ligand linked to
 PT nucleic acid binding domain and nucleic acid -
 XX
 PS Disclosure: Columns 83-84; 131pp; English.
 XX
 CC The invention relates to a novel gene delivery composition for the
 CC targeted delivery of cytotoxins or protein-converting enzymes to
 CC proliferating cells. The gene delivery composition comprises a protein
 CC that binds the fibroblast growth factor receptor (FGFR) which is fused or
 CC chemically conjugated to a nucleic acid binding domain. The nucleic
 CC acid binding domain is complexed with a suitable expression construct
 CC encoding a cytotoxin such as saporin. One or more linkers may join the
 CC FGF-binding protein to the nucleic acid binding protein. These are
 CC selected to increase the specificity, toxicity, solubility, serum
 CC stability or intracellular availability, and may serve to promote
 CC condensation of nucleic acids for delivery to a cell. The fusion protein
 CC binds to FGFR and is internalized by cells that carry this receptor. The
 CC gene delivery composition is used for the therapeutic alteration of the
 CC function, gene expression and viability of cells. In particular, it may
 CC be used for the treatment and prevention of cell proliferative disorders,
 CC for example after eye surgery, melanoma and many other sorts of cancer,
 CC rheumatoid arthritis, restenosis, Dupuytren's contracture, diabetic
 CC retinopathy, psoriasis and eczema. The gene delivery compositions of the
 CC invention have high specificity for particular cells and can deliver
 CC larger amounts of DNA compared to prior art methods. Sequences A12853-
 CC A12856 represent cDNA clones encoding vascular endothelial growth
 CC factor (VEGF), and sequences Y90402-Y90405 represent the encoded
 CC VEGF proteins. A12857 represents cDNA encoding human heparin-binding
 CC epidermal growth factor (HBEGF) precursor, and Y90406-Y90409 represent
 CC HBEGF precursor and mature proteins.
 XX
 SQ Sequence 147 AA;
 XX
 Query Match 67.9%; Score 53; DB 21; Length 147;
 Best Local Similarity 75.0%; Pred. No. 0.64; Mismatches 2; Indels 0; Gaps 0;
 Matches 9; Conservative 1;
 QY 2 RTKPECKDKPRR 13
 I : |||||
 Db 136 raregckdkpr 147
 XX
 RESULT 15
 Y69412
 ID Y69412 standard; Protein: 147 AA.
 XX
 AC Y69412;
 XX
 DT 03-JUL-2000 (first entry)
 XX
 DE Amino acid sequence of vascular endothelial growth factor 121.
 XX
 KW Human; vascular endothelial growth factor; VEGF 121; angiogenic factor;
 KW blood vessel injury; vascular injury; microvascular angiopathy;
 KW thrombotic microangiopathy; kidney disease; haemolytic uremic syndrome;
 KW toxic shock syndrome; venom; hypercoagulable state; platelet activation;
 KW platelet aggregation; thrombosis; preclampsia; sepsis; pancreatitis;
 KW intravascular coagulation; thrombotic thrombocytopenia purpura;
 KW acute renal failure; myocardial infarction; ischemic bowel disease;
 KW stroke; hypoxia; hypercapnia; fibrosis; toxic alveolar injury;
 KW acute respiratory distress syndrome; pneumonia; pulmonary emboli;
 KW birth prematurity disorder; wound; allergy; hypersensitivity;
 KW autoimmune disease; organ transplant; focal glomerulosclerosis;
 KW amyloidosis.
 XX
 OS Homo sapiens.
 XX

XX WO200013702-A2.
 FN 16-MAR-2000.
 PD 09-SEP-1999; 99MO-US20480.
 XX 09-SEP-1998; 98US-0099694.
 PR 26-MAR-1999; 99US-0126406.
 PR 27-MAR-1999; 99US-0126615.
 XX (SCIO-) SCIOS INC.
 PA Schreiner GF, Johnson RJ;
 XX WPI: 2000-256861/22.
 PI N-PDB; 299544.
 DR Novel methods and compositions for the prevention and treatment of
 PT microvascular angiodysplasies by administration of angiogenic factors such
 PT as vascular endothelial growth factor (VEGF)
 XX Disclosure; Fig 3; 46pp; English.
 PS The present sequence represents native human vascular endothelial growth
 CC factor (VEGF) 121. VEGF is an angiogenic factor. VEGF proteins are used
 CC for the prevention or repair of injury to blood vessels or associated
 CC nonvascular tissues (served by the blood vessels) and for the prevention
 CC and repair of vascular injury associated with microvascular angiodysplasia,
 CC particularly thrombotic microangiopathy. The proteins methods may also
 CC be used for the prevention and treatment of kidney diseases associated
 CC with injury to, or atrophy of, the vasculature of the glomerulus and
 CC interstitium. Conditions which may be treated include haemolytic uremic
 CC syndrome, toxic shock syndrome, venom exposure, chemical exposure,
 CC hypercoagulable states, platelet activation or aggregation, thrombosis,
 CC preclampsia, thrombotic thrombocytopenia purpura, disseminated
 CC intravascular coagulation, sepsis, pancreatitis, acute renal failure,
 CC myocardial infarction, ischemic bowel disease, transient ischemic
 CC attacks, stroke, hypoxia or hypercapnia or fibrosis arising from lung
 CC endothelium injury, acute respiratory distress syndrome, toxic alveolar
 CC injury, pneumonia, pulmonary emboli, birth prematurity disorders,
 CC wounds, allergic reactions, hypersensitivity, autoimmune diseases, organ
 CC transplants, focal glomerulosclerosis, and amyloidosis.
 XX Sequence 147 AA;
 S0

Query Match 67.9%; Score 53; DB 21; Length 147;
 Best Local Similarity 75.0%; Pred. No. 0.64;
 Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 2 RTKPKCKDKPRR 13
 | : |||||
 Db 136 rargckckprr 147

Search completed: November 9, 2000, 15:30:38
 Job time: 103 sec

Thu Nov 9 15:49:24 2000

us-09-266-543-1.ra1

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:28:59 ; Search time 63.67 Seconds
(without alignments)
11.846 Million cell updates/sec

Title: US-09-266-543-1

Sequence: 1 YCKNGGFLRIHPDGRVDV.....PHIKQLQAEKGVSIKGV 45

Scoring table: BLOSUM62

Gapop 10.0, Gapext 0.5

Searched: 164575 seqs, 16761186 residues

Total number of hits satisfying chosen parameters: 164575

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :
1: /cgn2_6/ptodata/2/1aa/5A.COMB.pep.*
2: /cgn2_6/ptodata/2/1aa/5B.COMB.pep.*
3: /cgn2_6/ptodata/2/1aa/6.COMB.pep.*
4: /cgn2_6/ptodata/2/1aa/PCNUS.COMB.pep.*
5: /cgn2_6/ptodata/2/1aa/backfiles1.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	239	100.0	132	1 US-08-100-744-4	Sequence 4, App11
2	239	100.0	132	1 US-08-284-784-4	Sequence 4, App11
3	239	100.0	132	2 US-08-854-811-4	Sequence 4, App11
4	239	100.0	140	4 PCT-US90-06962-1	Sequence 1, App11
5	239	100.0	145	1 US-07-830-330-1	Sequence 1, App11
6	239	100.0	145	1 US-08-187-780-3	Sequence 3, App11
7	239	100.0	145	2 US-08-478-485-3	Sequence 3, App11
8	239	100.0	146	2 US-08-231-894A-11	Sequence 11, App1
9	239	100.0	146	2 US-08-231-894A-11	Sequence 12, App1
10	239	100.0	146	2 US-08-231-894A-13	Sequence 13, App1
11	239	100.0	146	2 US-08-231-894A-14	Sequence 14, App1
12	239	100.0	146	2 US-08-231-894A-15	Sequence 15, App1
13	239	100.0	146	3 US-09-105-678A-49	Sequence 49, App1
14	239	100.0	146	5 5464943-6	Patent No. 5464943
15	239	100.0	146	5 5464943-8	Patent No. 5464943
16	239	100.0	146	5 5464943-10	Patent No. 5464943
17	239	100.0	146	5 5464943-12	Patent No. 5464943
18	239	100.0	146	5 5464943-14	Patent No. 5464943
19	239	100.0	146	5 5464943-25	Patent No. 5464943
20	239	100.0	146	5 5464943-26	Patent No. 5464943
21	239	100.0	147	5 5175147-8	Patent No. 5175147
22	239	100.0	147	5 5314872-1	Patent No. 5314872
23	239	100.0	150	1 US-08-441-629-8	Sequence 8, App11
24	239	100.0	150	3 US-08-776-207-8	Sequence 8, App11
25	239	100.0	150	3 PCT-US95-09172-8	Sequence 2, App11
26	239	100.0	153	4 US-08-325-186-2	Sequence 2, App11
27	239	100.0	154	2 US-08-438-439C-24	Sequence 24, App1
28	239	100.0	154	3 US-08-325-186-1	Sequence 1, App11

ALIGNMENTS

29	239	100.0	154	4 PCT-US91-02186-6	Sequence 6, App11
30	239	100.0	155	1 US-07-959-369-6	Sequence 6, App11
31	239	100.0	155	1 US-07-959-369-7	Sequence 7, App11
32	239	100.0	155	1 US-08-023-757-2	Sequence 2, App11
33	239	100.0	155	1 US-08-023-757-4	Sequence 4, App11
34	239	100.0	155	1 US-07-842-177A-1	Sequence 1, App11
35	239	100.0	155	1 US-08-177-502-2	Sequence 4, App11
36	239	100.0	155	1 US-08-177-502-4	Sequence 4, App11
37	239	100.0	155	1 US-08-439-723A-10	Sequence 10, App1
38	239	100.0	155	1 US-08-462-169B-10	Sequence 10, App1
39	239	100.0	155	1 US-08-867-471-10	Sequence 10, App1
40	239	100.0	155	2 US-08-867-471-10	Sequence 10, App1
41	239	100.0	155	2 US-08-438-439C-14	Sequence 14, App1
42	239	100.0	155	2 US-08-951-822-28	Sequence 14, App1
43	239	100.0	155	3 US-09-103-079-10	Sequence 10, App1
44	239	100.0	155	3 US-08-705-245-6	Sequence 6, App11
45	239	100.0	155	5 5514566-8	Patent No. 5514566

RESULT 1
US-08-100-744-4
Sequence 4, Application US/08100744
Patent No. 5563046

GENERAL INFORMATION:

APPLICANT: MASCARENHAS, DESMOND

APPLICANT: ZHANG, SUNNY

APPLICANT: OLSON, PAMELA

APPLICANT: OLSEN, DAVID

APPLICANT: CARRILLO, PEDRO A.

TITLE OF INVENTION: POLYPEPTIDE FUSIONS TO INTERLEUKIN-1-LIKE POLYPEPTIDES

NUMBER OF SEQUENCES: 12

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORRISON & FORSTER

STREET: 755 Page Mill Road

CITY: Palo Alto

STATE: California

COUNTRY: USA

ZIP: 94304-1018

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/100,744

FILING DATE: 02-AUG-1993

CLASSIFICATION: 435

ATTORNEY/AGENT INFORMATION:

NAME: LUTHER, BARBARA J.

REGISTRATION NUMBER: 33,954

REFERENCE/DOCKET NUMBER: 22095-20275.00

TELEPHONE: (415) 813-5600

TELEFAX: (415) 494-0792

TELEX: 706141

INFORMATION FOR SEQ ID NO: 4:

SEQUENCE CHARACTERISTICS:

LENGTH: 132 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-100-744-4

Query Match 100.0%; Score 239; DB 1; Length 132;
Best Local Similarity 100.0%; Pred. No. 8e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 1 YCKNGGFLRIHPDGRVDVKEKSDPHIKQLQAEKGVSIKGV 45

Thu Nov 9 15:49:24 2000

us-09-266-543-1.ra1

Page 2

Db 10 YCKNGGFLLRHPDGRVDSVREKSPDHKIQLOAERGVYSIKGV 54

RESULT 2
US-08-284-784-4
Sequence 4, Application US/08284784
Patent No. 5629172
GENERAL INFORMATION:
APPLICANT: MASCARENHAS, DESMOND
APPLICANT: ZHANG, YANG
APPLICANT: OLSON, PAMELA S.
APPLICANT: OLSEN, DAVID R.
APPLICANT: CARRILLO, PEDRO A.
TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES
TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER SEQUENCES
NUMBER OF SEQUENCES: 44
CORRESPONDENCE ADDRESS:
ADDRESSEE: MORRISON & FOERSTER
STREET: 755 Page Mill Road
City: Palo Alto
STATE: California
COUNTRY: USA
ZIP: 94304-1018
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/284,784
FILING DATE: 02-AUG-1994
CLASSIFICATION: 530
ATTORNEY/AGENT INFORMATION:
NAME: PARK, FREDDIE K.
REGISTRATION NUMBER: 35,636
REFERENCE/DOCKET NUMBER: 22095-20275.20
TELECOMMUNICATION INFORMATION:
TELEPHONE: (415) 813-5600
TELEFAX: (415) 494-0792
TELEX: 706141
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 132 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-284-784-4

Query Match 100.0%; Score 239; DB 1; Length 132;
Best Local Similarity 100.0%; Pred. No. 8e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 1 YCKNGGFLLRHPDGRVDSVREKSPDHKIQLOAERGVYSIKGV 45
Db 10 YCKNGGFLLRHPDGRVDSVREKSPDHKIQLOAERGVYSIKGV 54
RESULT 3
US-08-854-811-4
Sequence 4, Application US/08854811
Patent No. 5914254
GENERAL INFORMATION:
APPLICANT: Mascarenhas, Desmond
APPLICANT: Zhang, Yang
APPLICANT: Olson, Pamela S.
APPLICANT: Olsen, David R.
APPLICANT: Cohen, Pedro A.
TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES
TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER
SEQUENCES
NUMBER OF SEQUENCES: 49

CORRESPONDENCE ADDRESS:
ADDRESSEE: MORRISON & FOERSTER
STREET: 755 PAGE MILL ROAD
City: Palo Alto
STATE: CA
COUNTRY: USA
ZIP: 94304-1018
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: Windows
SOFTWARE: FastSeq for Windows Version 2.0b
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/854,811
FILING DATE: 12-MAY-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/284,784
FILING DATE: 02-AUG-1994
APPLICATION NUMBER: 08/100,744
FILING DATE: 02-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: Buftinger, Nicholas S
REGISTRATION NUMBER: 39,124
REFERENCE/DOCKET NUMBER: 22095-20275.21
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-813-5600
TELEFAX: 650-494-0792
TELEX: 706141
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 132 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
US-08-854-811-4

Query Match 100.0%; Score 239; DB 2; Length 132;
Best Local Similarity 100.0%; Pred. No. 8e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 1 YCKNGGFLLRHPDGRVDSVREKSPDHKIQLOAERGVYSIKGV 45
Db 10 YCKNGGFLLRHPDGRVDSVREKSPDHKIQLOAERGVYSIKGV 54

RESULT 4
PCT-US90-06962-1
Sequence 1, Application PC/TUS9006962
GENERAL INFORMATION:
APPLICANT: Baird, J. A.
APPLICANT: Hajjar, David P.
TITLE OF INVENTION: Treatment of HSV
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fitch, Even, Tabin & Flannery
STREET: 135 South LaSalle Street, Suite 900
City: Chicago
STATE: Illinois
COUNTRY: USA
ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.24
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US90/06962
FILING DATE: 19901129
CLASSIFICATION: A6 186/C1 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/443,939

FILING DATE: 30-NOV-1989
ATTORNEY/AGENT INFORMATION:
NAME: Schumann, James J.
REGISTRATION NUMBER: 20856
REFERENCE/DOCKET NUMBER: 50742
TELECOMMUNICATION INFORMATION:
TELEPHONE: (619)552-1311
TELEFAX: (619)552-0095
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 157 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US90-06962-1

Query Match 100.0%; Score 239; DB 4; Length 140;
Best Local Similarity 100.0%; Pred. No. 8,6e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGEFLRIHPDGRVDGVRKSDPHIKLOLAERGVSISKV 45
|||||
DB 35 YCKNGEFLRIHPDGRVDGVRKSDPHIKLOLAERGVSISKV 79

RESULT 5
US-07-830-330-1
Sequence 1, Application US/07830330
Patent No. 5288704
GENERAL INFORMATION:
APPLICANT: Ungheri, Domenico
APPLICANT: Garofano, Luisa
APPLICANT: Battistini, Carlo
APPLICANT: Carmignani, Paolo
APPLICANT: Mazze, Guy
TITLE OF INVENTION: SYNERGISTIC COMPOSITION COMPRISING A
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR AND A SULFATED POLYSACCHARIDE,
TITLE OF INVENTION: FOR USE AS ANTIYTRAL AGENT
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT,
STREET: 1755 Jefferson Davis Highway, Fourth Floor
CITY: Arlington
STATE: Virginia
ZIP: 22202
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/830,330
FILING DATE: 19920420
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Oblon, No. 5288704man F.
REGISTRATION NUMBER: 24,618
REFERENCE/DOCKET NUMBER: 769-230-0
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703)521-4500
TELEFAX: (703)486-2347
TELEX: 248855 OPAT UR
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 145 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
ORIGINAL SOURCE:
ORGANISM: Homo sapiens
US-07-830-330-1

Query Match 100.0%; Score 239; DB 1; Length 145;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGEFLRIHPDGRVDGVRKSDPHIKLOLAERGVSISKV 45
|||||
DB 24 YCKNGEFLRIHPDGRVDGVRKSDPHIKLOLAERGVSISKV 68

RESULT 6
US-08-187-780-3
Sequence 3, Application US/08187780
Patent No. 5459250
GENERAL INFORMATION:
APPLICANT: CLAUDIO BASILICO
APPLICANT: DANIELA TALARICO
TITLE OF INVENTION: MAMMALIAN GROWTH FACTOR
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
ADDRESSEE: Darby & Darby P.C.
STREET: 805 Third Avenue
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10022
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 5.25 inch,
MEDIUM TYPE: 360 Kb storage
COMPUTER: IBM or IBM-compatible
OPERATING SYSTEM: PC/MS-DOS
SOFTWARE: Wordperfect
CURRENT APPLICATION DATA:
APPLICATION NUMBER: 07/901,705
FILING DATE: June 22, 1992
APPLICATION NUMBER: 07/806,771
FILING DATE: December 6, 1991
APPLICATION NUMBER: 07/177,506
FILING DATE: April 4, 1988
APPLICATION NUMBER: 07/062,925
FILING DATE: June 16, 1987
ATTORNEY/AGENT INFORMATION:
NAME: Howard M. Frankfort
REGISTRATION NUMBER: 32,613
REFERENCE/DOCKET NUMBER: 5986/13586-US3
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 527-7700
TELEFAX: (212) 753-6237
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 145
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: Protein
FEATURE:
NAME/KEY:
LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION: This sequence,
OTHER INFORMATION: corresponding to bovine basic fibroblast
OTHER INFORMATION: growth factor, can be found in Table 1,
OTHER INFORMATION: page 9, lines 9, 14, and 19, in the
PUBLICATION INFORMATION:
AUTHORS:
TITLE:

JOURNAL:
VOLUME:
ISSUE:
PAGES:
DATE:
DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO: 1-145
US-08-187-780-3

Query Match 100.0%; Score 239; DB 1; Length 145;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 1 YCKNGFFLRHPGKRVGVREKSDPHIKLQLOAERGVSINKV 45
Db 24 YCKNGFFLRHPGKRVGVREKSDPHIKLQLOAERGVSINKV 68

RESULT 7
US-08-478-485-3
Sequence 3, Application US/08478485
Patent No. 5883071

GENERAL INFORMATION:
APPLICANT: CLAUDIO BASILICO
APPLICANT: DANIELA TALARICO
TITLE OF INVENTION: MAMMALIAN GROWTH FACTOR
NUMBER OF SEQUENCES: 8
CORRESPONDENCE ADDRESS:
ADDRESSEE: Darby & Darby P.C.
STREET: 805 Third Avenue
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10022

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy Diskette, 3+ Inch,
MEDIUM TYPE: 1.44 MB storage
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC/MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/478,485
FILING DATE: Concurrently Herewith
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/187,780
FILING DATE: January 25, 1994
APPLICATION NUMBER: 07/901,705
FILING DATE: June 22, 1992
APPLICATION NUMBER: 07/806,771
FILING DATE: December 6, 1991
APPLICATION NUMBER: 07/177,506
FILING DATE: April 4, 1988
APPLICATION NUMBER: 07/062,925
FILING DATE: June 16, 1987
ATTORNEY/AGENT INFORMATION:
NAME: Joseph R. Robinson
REGISTRATION NUMBER: 33,448
REFERENCE/DOCKET NUMBER: 5986/13586-US6
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 527-7700
TELEFAX: (212) 753-6237
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 145
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: Protein
DESCRIPTION: Protein

FEATURE:
NAME/KEY:
LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION: This sequence,
OTHER INFORMATION: corresponding to bovine basic fibroblast
OTHER INFORMATION: growth factor, can be found in Table 1,
OTHER INFORMATION: page 9, lines 9, 14, and 19, in the
PUBLICATION INFORMATION:
AUTHORS:
TITLE:
JOURNAL:
VOLUME:
ISSUE:
PAGES:
DATE:
DOCUMENT NUMBER:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO: 1-145
US-08-478-485-3

Query Match 100.0%; Score 239; DB 2; Length 145;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 1 YCKNGFFLRHPGKRVGVREKSDPHIKLQLOAERGVSINKV 45
Db 24 YCKNGFFLRHPGKRVGVREKSDPHIKLQLOAERGVSINKV 68

RESULT 8
US-08-231-894A-11
Sequence 11, Application US/08231894A
Patent No. 5851990

GENERAL INFORMATION:
APPLICANT: FUJISHIMA, AKIRA
APPLICANT: FUKUDA, TSUNEHIRO
TITLE OF INVENTION: BFGF MOTEIN AND ITS PRODUCTION
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: DAVID G. CONLIN, DIKE, BRONSTEIN, ROBERTS
STREET: 130 WATER STREET
CITY: BOSTON
STATE: MASSACHUSETTS
COUNTRY: US
ZIP: 02109

COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSeq version 1.5
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/231,894A
FILING DATE: 22-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/873907
FILING DATE: 24-APR-1992
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 097655-1991
FILING DATE: 26-APR-1991
APPLICATION NUMBER: JP 066381-1992
FILING DATE: 24-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: RESNICK, DAVID S.
REGISTRATION NUMBER: 34235
REFERENCE/DOCKET NUMBER: 41769-FWC

```

? TELECOMMUNICATION INFORMATION
? TELEPHONE: (617) 523-3400
? TELEFAX: (617) 523-6640
? INFORMATION FOR SEQ ID NO: 11:
? SEQUENCE CHARACTERISTICS:
? LENGTH: 146 amino acids
? TYPE: amino acid
? STRANDEDNESS: single
? TOPOLOGY: linear
? MOLECULE TYPE: peptide
? HYPOTHEetical: NO
? ANTI-SENSE: NO
? FRAGMENT TYPE: internal
? ORIGINAL SOURCE:
US-08-231-894A-11

```

Query Match	100.0%	Score 239	DB 2	Length 146
Best Local Similarity	100.0%	Pred. NC	9e-28	
Matches 45, Conservative	0	Mismatches	0	Indels 0
				Gaps 0

QY 1 YCKNGGFLRIHPDGRVDGVREKSDPHIKLQLAEERGVVS IKGY 45
 |||||
Db 24 YCKNGGFLRIHPDGRVDGVREKSDPHIKLQLAEERGVVS IKGY 68

RESULT 9
 US-08-231-894A-12
 Sequence 12, Application US/08231894A
 Patent No. 5851990
 GENERAL INFORMATION:
 APPLICANT: FUJISHIMA, AKIRA
 APPLICANT: FUKUDA, TSUNEHIKO
 TITLE OF INVENTION: BEGF MUTEIN AND ITS PRODUCTION
 NUMBER OF SEQUENCES: 15
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTSON
 ADDRESSEE: & CUSHMAN
 STREET: 130 WATER STREET
 CITY: BOSTON
 STATE: MASSACHUSETTS
 COUNTRY: US
 ZIP: 02109
 COMPUTER READABLE FORM:
 MEDIUM TYPE: Diskette
 COMPUTER: IBM Compatible
 OPERATING SYSTEM: DOS
 SOFTWARE: FASTSEQ Version 1.5
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/231,894A
 FILING DATE: 22-APR-1994
 CLASSIFICATION: 435
 PRIOR APPLICATION DATA:
 APPLICATION NUMBER: US 07/873907
 FILING DATE: 24-APR-1992
 CLASSIFICATION: 435
 PRIOR APPLICATION DATA:
 APPLICATION NUMBER: JP 097655-1991
 FILING DATE: 26-APR-1991
 PRIOR APPLICATION DATA:
 APPLICATION NUMBER: JP 066381-1992
 FILING DATE: 24-MAR-1992
 ATTORNEY/AGENT INFORMATION:
 NAME: RESNICK, DAVID S.
 REGISTRATION NUMBER: 34235
 REFERENCE/DOCKET NUMBER: 41769-FWC
 TELECOMMUNICATION INFORMATION:
 TELEPHONE: (617) 523-3400
 TELEFAX: (617) 523-6440
 INFORMATION FOR SEQ ID NO: 12:
 LENGTH: 146 amino acids
 TYPE: amino acid

```

; STRADEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; FRAGMENT TYPE: 'Internal'
; ORIGINAL SOURCE:
;
US-08-231-894A-12

```

Query Match	100.0%	Score 239	DB 2	Length 146
Best Local Similarity	100.0%	Pred. No. 9e-28		
Matches 45; Conservative	0;	Mismatches	0;	Indels 0; Gaps 0;

QY 1 YCKNGGFFLRHPDGRVDGVREKSDPHIKLQLQAERGVSISKV 45
 |||||
 Db 24 YCKNGGFFLRHPDGRVDGVREKSDPHIKLQLQAERGVSISKV 68

```

1      RESULT 10
2      US-08-231-894A-13
3      ; Sequence 13: Application US/08231894A
4      ; Patent No. 5851990
5      ;
6      ; GENERAL INFORMATION:
7      ; APPLICANT: FUJISHIMA, AKIRA
8      ; APPLICANT: FUKUDA, TSUNEHITO
9      ; TITLE OF INVENTION: BFGF PROTEIN AND ITS PRODUCTION
10     ; NUMBER OF SEQUENCES: 15
11     ;
12     ; CORRESPONDENCE ADDRESS:
13     ; ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
14     ; ADDRESSEE: 6 CUSHMAN
15     ; STREET: 130 WATER STREET
16     ; CITY: BOSTON
17     ; STATE: MASSACHUSETTS
18     ; COUNTRY: US
19     ; ZIP: 02109
20     ;
21     ; COMPUTER READABLE FORM:
22     ; MEDIUM TYPE: Diskette
23     ; COMPUTER: IBM Compatible
24     ; OPERATING SYSTEM: DOS
25     ; SOFTWARE: FastSeq Version 1.5
26     ; CURRENT APPLICATION DATA:
27     ; APPLICATION NUMBER: US/08/231,894A
28     ; FILING DATE: 22-APR-1994
29     ; CLASSIFICATION: 435
30     ; PRIOR APPLICATION DATA:
31     ; APPLICATION NUMBER: US 07/873907
32     ; FILING DATE: 24-APR-1992
33     ; CLASSIFICATION: 435
34     ; PRIOR APPLICATION DATA:
35     ; APPLICATION NUMBER: JP 097655-1991
36     ; FILING DATE: 26-APR-1991
37     ; PRIOR APPLICATION DATA:
38     ; APPLICATION NUMBER: JP 066381-1992
39     ; FILING DATE: 24-MAR-1992
40     ; ATTORNEY/AGENT INFORMATION:
41     ; NAME: RESNICK, DAVID S.
42     ; REGISTRATION NUMBER: 34235
43     ; REFERENCE/DOCKET NUMBER: 41769-FWC
44     ; TELECOMMUNICATION INFORMATION:
45     ; TELEPHONE: (517) 523-3400
46     ; TELEFAX: (617) 523-6440
47     ; INFORMATION FOR SEQ ID NO: 13:
48     ; SEQUENCE CHARACTERISTICS:
49     ; LENGTH: 146 amino acids
50     ; TYPE: amino acid
51     ; STRANDEDNESS: single
52     ; TOPOLOGY: linear
53     ; MOLECULE TYPE: peptide
54     ; HYPOTHETICAL: NO
55     ; ANTI-SENSE: NO
56     ; FRAGMENT TYPE: Internal
57     ; ORIGINAL SOURCE:

```

US-08-231-894A-13

Query Match 100.0%; Score 239; DB 2; Length 146;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVVSIGV 45
DB 24 YCKNGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVVSIGV 68

RESULT 11
US-08-231-894A-14
; Sequence 14, Application US/08231894A
; Patent No. 5851990
; GENERAL INFORMATION:
; APPLICANT: FUJISHIMA, AKIRA
; APPLICANT: FUKUDA, TSUNEHIKO
; TITLE OF INVENTION: BFGF MUTEIN AND ITS PRODUCTION
; NUMBER OF SEQUENCES: 15
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
; STREET: 130 WATER STREET
; CITY: BOSTON
; STATE: MASSACHUSETTS
; COUNTRY: US
; ZIP: 02109
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FASTSEQ Version 1.5
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/231,894A
; FILING DATE: 22-APR-1994
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/873907
; FILING DATE: 24-APR-1992
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: JP 097655-1991
; FILING DATE: 26-APR-1991
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: JP 066381-1992
; FILING DATE: 24-MAR-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: RESNICK, DAVID S.
; REGISTRATION NUMBER: 34235
; REFERENCE/DOCKET NUMBER: 41769-FWC
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (617) 523-3400
; TELEFAX: (617) 523-6440
; INFORMATION FOR SEQ ID NO: 14:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 146 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; FRAGMENT TYPE: internal
; ORIGINAL SOURCE:
US-08-231-894A-14

Query Match 100.0%; Score 239; DB 2; Length 146;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVVSIGV 45
DB 24 YCKNGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVVSIGV 68

RESULT 12
US-08-231-894A-15
; Sequence 15, Application US/08231894A
; Patent No. 5851990
; GENERAL INFORMATION:
; APPLICANT: FUJISHIMA, AKIRA
; APPLICANT: FUKUDA, TSUNEHIKO
; TITLE OF INVENTION: BFGF MUTEIN AND ITS PRODUCTION
; NUMBER OF SEQUENCES: 15
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
; STREET: 130 WATER STREET
; CITY: BOSTON
; STATE: MASSACHUSETTS
; COUNTRY: US
; ZIP: 02109
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: DOS
; SOFTWARE: FASTSEQ Version 1.5
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/231,894A
; FILING DATE: 22-APR-1994
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/873907
; FILING DATE: 24-APR-1992
; CLASSIFICATION: 435
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: JP 097655-1991
; FILING DATE: 26-APR-1991
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: JP 066381-1992
; FILING DATE: 24-MAR-1992
; ATTORNEY/AGENT INFORMATION:
; NAME: RESNICK, DAVID S.
; REGISTRATION NUMBER: 34235
; REFERENCE/DOCKET NUMBER: 41769-FWC
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (617) 523-3400
; TELEFAX: (617) 523-6440
; INFORMATION FOR SEQ ID NO: 15:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 146 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; FRAGMENT TYPE: internal
; ORIGINAL SOURCE:
US-08-231-894A-15

Query Match 100.0%; Score 239; DB 2; Length 146;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVVSIGV 45
DB 24 YCKNGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVVSIGV 68

RESULT 13
US-09-105-678A-49


```
; Sequence 49, Application US/09105678A
; Patent No. 6103882
; GENERAL INFORMATION:
; APPLICANT: Suenaga, Masato
; APPLICANT: Moriya, Takeo
; APPLICANT: Tanaka, Yoko
; APPLICANT: Nishimura, Osamu
; TITLE OF INVENTION: METHOD OF PRODUCING A 19P2 LIGAND
; NUMBER OF SEQUENCES: 52
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: DIKE, BRONSTEIN, ROBERTS & CUSHMAN, LLP
; STREET: 130 Water Street
; CITY: Boston
; STATE: MA
; COUNTRY: USA
; ZIP: 02109
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/105,678A
; FILING DATE: 26-JUN-1998
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: JP 172118/1997
; FILING DATE: 27-JUN-1997
; ATTORNEY/AGENT INFORMATION:
; NAME: Conlin, David G.
; REGISTRATION NUMBER: 27,026
; REFERENCE/DOCKET NUMBER: 48466-342
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 617-523-3400
; TELEFAX: 617-523-6440
; INFORMATION FOR SEQ ID NO: 49:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 146 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
; MOLECULE TYPE: Peptide
; US-09-105-678A-49

Query Match          100.0%; Score 239; DB 3; Length 146;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFLLRHPDGRVGVREKSDPHIKLQLQAEERGVSIGKV 45
    |||||||
DB 24 YCKNGGFLLRHPDGRVGVREKSDPHIKLQLQAEERGVSIGKV 68

RESULT 14
; Patent No. 5464943
; APPLICANT: SENOO, MASAHARU; SASADA, REIKO; IGARASHI, KOICHI
; TITLE OF INVENTION: DNA ENCODING GLYCOSYLATED FGF AND
; PRODUCTION THEREOF
; NUMBER OF SEQUENCES: 42
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/275,635
; FILING DATE: 15-JUL-1994
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 7,089
; FILING DATE: 19-JAN-1993
; APPLICATION NUMBER: 511,469
; FILING DATE: 20-APR-1990
; SEQ ID NO: 6
; LENGTH: 146
5464943-6
```

```
Query Match          100.0%; Score 239; DB 5; Length 146;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFLLRHPDGRVGVREKSDPHIKLQLQAEERGVSIGKV 45
    |||||||
DB 24 YCKNGGFLLRHPDGRVGVREKSDPHIKLQLQAEERGVSIGKV 68
```

```
RESULT 15
5464943-8
; Patent No. 5464943
; APPLICANT: SENOO, MASAHARU; SASADA, REIKO; IGARASHI, KOICHI
; TITLE OF INVENTION: DNA ENCODING GLYCOSYLATED FGF AND
; PRODUCTION THEREOF
; NUMBER OF SEQUENCES: 42
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/275,635
; FILING DATE: 15-JUL-1994
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 7,089
; FILING DATE: 19-JAN-1993
; APPLICATION NUMBER: 511,469
; FILING DATE: 20-APR-1990
; SEQ ID NO: 8
; LENGTH: 146
5464943-8
```

```
Query Match          100.0%; Score 239; DB 5; Length 146;
Best Local Similarity 100.0%; Pred. No. 9e-28;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFLLRHPDGRVGVREKSDPHIKLQLQAEERGVSIGKV 45
    |||||||
DB 24 YCKNGGFLLRHPDGRVGVREKSDPHIKLQLQAEERGVSIGKV 68
```

Search completed: November 9, 2000, 15:33:00
Job time: 241 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:28:59 ; Search time 72.39 Seconds

(without alignments)
39.449 Million cell updates/sec

Title: US-09-266-543-1

Perfect score: 239
Sequence: 1 YCKNGGFFLRHPDGRVDGV.....PHIKIQLOAENGVSINKV 45

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0
Maximum DB seq length: 200000000Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :

PIR.65:*
1: PIR1:*
2: PIR2:*
3: PIR3:*
4: PIR4:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	239	100.0	137	2 I46711	fibroblast growth
2	239	100.0	146	1 S00185	basic fibroblast g
3	239	100.0	157	1 GKBOB	basic fibroblast g
4	239	100.0	210	2 A32398	basic fibroblast g
5	238	99.6	154	2 A31674	basic fibroblast g
6	238	99.6	154	2 C37360	basic fibroblast g
7	232	97.1	189	2 A48834	basic fibroblast g
8	231	96.7	164	2 S31622	basic fibroblast g
9	199	83.3	155	1 A40117	basic fibroblast g
10	156	65.3	155	1 A60721	acidic fibroblast
11	156	65.3	155	2 S04147	acidic fibroblast
12	156	65.3	155	2 D37360	acidic fibroblast
13	154	64.4	155	2 JMW055	acidic fibroblast
14	153	64.0	155	2 A60130	acidic fibroblast
15	148	61.9	152	2 JH0476	acidic fibroblast
16	148	61.9	155	1 A33665	acidic fibroblast
17	146	61.1	155	1 GKBOB	acidic fibroblast
18	109	45.6	60	2 JH0708	fibroblast growth
19	103	43.1	208	2 S14192	fibroblast growth
20	102	42.7	208	2 S20102	fibroblast growth
21	96	40.2	194	2 I50710	fibroblast growth
22	94.5	39.5	256	2 JC4627	fibroblast growth
23	94	39.3	206	2 JC4268	fibroblast growth
24	94	39.3	264	2 A36207	fibroblast growth
25	94	39.3	266	2 S68144	fibroblast growth
26	90	37.7	202	1 TVMSHS	fibroblast growth
27	90	37.7	267	1 TVHUP5	fibroblast growth
28	85	35.6	206	1 TVHUS	fibroblast growth
29	84.5	35.4	220	2 I50588	fibroblast growth

30	83	34.7	245	1 TVMST2	transforming prote
31	82	34.3	168	2 JG0184	fibroblast growth
32	82	34.3	187	2 S23595	embryonic fibrobla
33	79	33.1	192	2 S54407	embryonic fibrobla
34	79	33.1	239	1 S04742	fibroblast growth
35	77.5	32.4	208	2 JC7082	fibroblast somatot
36	76.5	32.0	237	1 S35982	transforming prote
37	70.5	29.5	121	2 S68145	fibroblast growth
38	69.5	29.1	208	2 S66486	fibroblast growth
39	69.5	29.1	208	2 A48137	fibroblast growth
40	67.5	28.2	207	2 JC5940	fibroblast growth
41	67.5	28.2	207	2 JC5941	fibroblast growth
42	66.5	27.8	194	2 I48610	keratinocyte growt
43	65.5	27.4	194	1 A36301	fibroblast growth
44	65.5	27.4	194	2 S26049	fibroblast growth
45	65.5	27.4	194	2 S49501	keratinocyte growt

ALIGNMENTS

RESULT 1
I46711
fibroblast growth factor - rabbit (fragment)
C:Species: Oryctolagus cuniculus (domestic rabbit)
C>Date: 14-Feb-1997 #sequence_revision 14-Feb-1997 #text_change 16-Jul-1999
C:Accession: I46711
R:Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Llau, G.
Am. J. Pathol. 143, 518-527, 1993
A:Title: Elevated expression of basic fibroblast growth factor in an immortalized rab
A:Reference number: I46711; MWID:9343209
A:Accession: I46711
A>Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-137 <MIN>
A:Cross-references: GB:I12034; NID:q165014; PIDN:AAA31248.1; PID:q165015
C:Superfamily: fibroblast growth factor

Query Match 100.0%; Score 239; DB 2; Length 137;
Best Local Similarity 100.0%; Pred. No. 1.6e-24;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFFLRHPDGRVDGVREKSDPHIKIQLOAENGVSINKV 45
|||||
DB 24 YCKNGGFFLRHPDGRVDGVREKSDPHIKIQLOAENGVSINKV 68
|||||

RESULT 2
S00185
basic fibroblast growth factor - sheep
N:Alternate names: prostatripin
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C>Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
R:Simpton, R.J.; Moritz, R.L.; Lloyd, C.J.; Faari, L.J.; Nice, E.C.; Rubira, M.R.; P.
FEBS Lett. 224, 128-132, 1987
A:Title: Primary structure of ovine pituitary basic fibroblast growth factor.
A:Reference number: S00185; MWID:88055377
A:Accession: S00185
A:Molecule type: protein
A:Residues: 1-146 <SIM>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding; mitogen
F:18-22/Region: heparin binding #status predicted
F:107-110/Region: heparin binding #status predicted

Query Match 100.0%; Score 239; DB 1; Length 146;
Best Local Similarity 100.0%; Pred. No. 1.7e-24;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFFLRHPDGRVDGVREKSDPHIKIQLOAENGVSINKV 45

DB 24 YCKNGGFRLRHPDGRVGVREKSPDHKIKLOAERGVSIRKGV 68

RESULT 3

GROB

basic fibroblast growth factor precursor - bovine (fragment)

M/Alternate names: bFGF; kidney-derived growth factor; prostactropin

C/Species: Bos primigenius taurus (cattle)

C/Date: 13-Aug-1986 #sequence.revision 02-Jun-1995 #text.change 24-Nov-1999

R/Accession: A24663; A32878; A33784; A61550; A60310; A61094; A01386; A60316; A22

R/Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjertild, K.A.; GOSF

Science 233, 545-548, 1986

A/Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fi

A/Reference number: A94290; MUID:86261806

A/Accession: A24663

A/Molecule type: mRNA

A/Residues: 3-157 <ABR>

A/Cross-references: GB:M13440; NID:9163049; PIDN:AAA30518.1; PID:g163050

A/Experimental source: pituitary gland

R/Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.

Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986

A/Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization

A/Reference number: A90924; MUID:87217066

A/Accession: A32878

A/Molecule type: mRNA

A/Residues: 3-157 <AB2>

Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989

A/Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purification

A/Reference number: A33784; MUID:90121211

A/Accession: A33784

A/Molecule type: protein

A/Residues: 1-14 <MTL>

A/Note: demonstration of a possible alternative initiator or splice junction

R/Bertolini, J.; Heern, M.T.W.

Mol. Cell. Endocrinol. 51, 187-199, 1987

A/Title: Isolation, characterization and tissue localisation of an N-terminal-truncated

A/Reference number: A61550; MUID:87247652

A/Accession: A61550

A/Molecule type: protein

A/Residues: 16-35

R/Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.

Mol. Cell. Endocrinol. 49, 189-194, 1987

A/Title: Isolation and partial characterization of basic fibroblast growth factor from h

A/Reference number: A61551; MUID:87162856

A/Accession: A61551

A/Molecule type: protein

A/Residues: 27-35, 'X', '37-41 <DB3>

A/Experimental source: testes

A/Note: this form appears to be identical to the renal form

R/Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Guillemin, R.

Regul. Pept. 16, 135-145, 1986

A/Title: Purification and partial characterization of a mitogenic factor from bovine liv

A/Reference number: A60310; MUID:87119155

A/Accession: A60310

A/Molecule type: protein

A/Residues: 23-35, 'X', '37-42 <EN2>

A/Experimental source: liver

R/Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospod

Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985

A/Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF) a

A/Reference number: A01386; MUID:86016731

A/Accession: A01386

A/Molecule type: protein

A/Residues: 12-157 <ESC>

A/Experimental source: pituitary gland

R/Baird, A.; Esch, F.; Boehlen, P.; Ling, N.; Gospodarowicz, D.

Regul. Pept. 12, 201-213, 1985

A/Title: Isolation and partial characterization of an endothelial cell growth factor

A/Reference number: A60316; MUID:86095426

A/Accession: A60316

A/Molecule type: protein

A/Residues: 27-35, 'X', '37-43 <BA1>

A/Experimental source: kidney

R/Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.

Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984

A/Title: Isolation and partial molecular characterization of pituitary fibroblast gro

A/Reference number: A22054; MUID:84298139

A/Accession: A22054

A/Molecule type: protein

A/Residues: 12-26 <BOH>

C/Comment: The acidic and basic fibroblast growth factors are the major endothelial-c

ell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulat

C/Comment: This protein binds heparin more strongly than does aFGF.

C/Superfamily: fibroblast growth factor

F/1-157/Product: alternative splicing; angiogenesis; blocked amino end; growth factor; hep

F/1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MAT1

F/12-157/Product: basic fibroblast growth factor, pituitary gamma form #status experim

F/16-157/Product: basic fibroblast growth factor, pituitary alpha form #status experi

F/23-157/Product: basic fibroblast growth factor, hepatic form #status predic

F/27-157/Product: basic fibroblast growth factor, renal form #status experimental <

F/29-33, 118-121/Region: heparin binding #status predicted

F/4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably

Query Match 100.0%; Score 239; DB 1; Length 157;

Best Local Similarity 100.0%; Pred. No. 1.8e-24;

Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFRLRHPDGRVGVREKSPDHKIKLOAERGVSIRKGV 45

DB 35 YCKNGGFRLRHPDGRVGVREKSPDHKIKLOAERGVSIRKGV 79

RESULT 4

A32398

basic fibroblast growth factor precursor, 22.5K form - human

N/Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prostac

N/Contains: basic fibroblast growth factor, 18K form

C/Species: Homo sapiens (man)

C/Date: 31-Jul-1989 #sequence.revision 31-Dec-1993 #text.change 16-Jul-1999

C/Accession: A32398; A61537; A26642; B32878; S00297; A54316; B54316; A25824; A25824;

R/Prats, H.; Kagnad, M.; Prats, A.C.; Klagsbrun, M.; Bellis, J.M.; Liauzun, P.; Charic

Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989

A/Title: High molecular mass forms of basic fibroblast growth factor are initiated by

A/Reference number: A32398; MUID:89184522

A/Accession: A32398

A/Molecule type: mRNA

A/Residues: 1-210 <PFA>

A/Cross-references: GB:J04513; NID:9183083; PIDN:AAA52531.1; PID:g459811

R/Shibata, F.; Baird, A.; Florkiewicz, R.Z.

Growth Factors 4, 277-287, 1991

A/Title: Functional characterization of the human basic fibroblast growth factor gene

A/Reference number: A61537; MUID:92110035

A/Accession: A61537

A/Molecule type: DNA

A/Residues: 1-114 <SHI>

A/Note: authors translated the codon GGA for residue 47 as Ala

R/Kurikawa, T.; Sasada, R.; Iwano, M.; Igarashi, K.

FEBS Lett. 213, 189-194, 1987

A>Title: Cloning and expression of cDNA encoding human basic fibroblast growth factor.
 A:Reference number: A26642; MUID:87162468
 A:Accession: A26642
 A:Molecule type: mRNA
 A:Residues: 56-210 <KOR>
 A:Cross-references: GB:M27968; NID:9182562; PIDN:AAA52448.1; PID:9182563
 R:Abraham, J.A.; Wang, J.L.; Tumbolo, A.; Merz, A.; Fiddes, J.C.
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
 A>Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization
 A:Reference number: A90924; MUID:87217066
 A:Accession: B32878
 A:Molecule type: mRNA
 A:Residues: 56-210 <ABR>
 A>Note: the authors translated the codon GAA for residue 108 as Gly
 R:Abraham, J.A.; Wang, J.L.; Tumbolo, A.; Merz, A.; Friedman, J.; Gospodarowicz, D.; F
 EMO J. 5, 2523-2528, 1986
 A>Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organizat
 A:Reference number: S00297; MUID:87053817
 A:Accession: S00297
 A>Status: not compared with conceptual translation
 A:Molecule type: DNA
 A:Residues: 1-155 <AB2>
 A>Note: the authors translated the codon GAA for residue 108 as Gly
 R:Shimoyama, Y.; Gotob, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.
 Jpn. J. Cancer Res. 82, 1263-1270, 1991
 A>Title: Characterization of high-molecular-mass forms of basic fibroblast growth factor
 A:Reference number: A54316; MUID:92091228
 A:Accession: A54316
 A:Molecule type: Protein
 A:Residues: 'XX', 86-88, 'X', 90-91, 'X', 93-95 <SH3>
 A:Experimental source: C-1121 hepatocellular carcinoma cell line
 A>Note: sequence extracted from NCBI backbone (NCBIP:71595)
 A:Accession: B54316
 A:Molecule type: Protein
 A:Residues: 'XXX', 19, 'X', 21-29 <SH2>
 A>Note: sequence extracted from NCBI backbone (NCBIP:71594)
 R:Feige, J.J.; Bradley, J.D.; Fryburg, K.; Faris, J.; Cousens, L.C.; Barr, P.J.; Baird,
 J. Cell Biol. 109, 3105-3114, 1989
 A>Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation
 A:Reference number: A33624; MUID:90078343
 A:Accession: A33624
 A>Status: preliminary
 A:Molecule type: protein
 A:Residues: 57-210 <FER>
 R:Storoy, M.T.; Esch, F.; Shinasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
 Biochem. Biophys. Res. Commun. 142, 702-709, 1987
 A>Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolate
 A:Reference number: A25824; MUID:87156686
 A:Accession: A25824
 A:Molecule type: protein
 A:Residues: 57-77 <STO>
 A:Experimental source: prostate
 R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986
 A>Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
 A:Reference number: A90122; MUID:86186784
 A:Accession: B24243
 A:Molecule type: protein
 A:Residues: 65-102, 'X', 104-105 <GIN>
 A:Experimental source: brain
 R:Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
 FEBS Lett. 204, 203-207, 1986
 A>Title: Partial molecular characterization of endothelial cell mitogens from human brai
 A:Reference number: A91364; MUID:86252620
 A:Accession: B24301
 A:Molecule type: protein
 A:Residues: 65-88, 'X', 90-98, 'X', 100 <GAN>
 R:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987
 A>Title: A form of human basic fibroblast growth factor with an extended amino terminus.
 A:Reference number: S42242; MUID:87213238
 A:Accession: S42242

A>Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 54-210 <SOM>
 A:Cross-references: EMBL:M17599; NID:9183086; PIDN:AAA52534.1; PID:9183087
 R:Patoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore
 Biochemistry 33, 10229-10248, 1994
 A>Title: Multivalent ligand-receptor binding interactions in the fibroblast growth fa
 A:Reference number: A5784; MUID:94347757
 A:Accession: B55784
 A:Molecule type: protein
 A:Residues: 54-71 <PAN>
 R:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
 Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992
 A>Title: Reverse transcription with nested polymerase chain reaction shows expression
 A:Reference number: 152267; MUID:93038590
 A:Accession: 152267
 A>Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 95-182 <RES>
 A:Cross-references: GB:S47380; NID:9256535
 A:Experimental source: granulosa cells
 R:Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
 FEBS Lett. 349, 23-28, 1994
 A>Title: Purification and characterization of the 210-amino acid recombinant basic fi
 A:Reference number: S46253; MUID:94320639
 A:Accession: S46253
 A:Molecule type: protein
 A:Residues: 39-53; 65-88 <PAT>
 A>Note: recombinant gene expressed in Escherichia coli
 C:Genetics:
 A:Gene: GDB:FGF2; FGFR
 A:Cross-references: SDB:119910; OMIM:134920
 A:Map position: 4q25-4q27
 A:Start codon: CAG
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mit
 F:1-210/Product: basic fibroblast growth factor, 22.5k form #status predicted <MA2>
 F:65-210/Product: basic fibroblast growth factor, 18k form #status predicted <MA2>
 F:82-86/Region: heparin binding #status predicted
 F:171-174/Region: heparin binding #status predicted

Query Match 100.0%; Score 239; DB 2; Length 210;
 Best Local Similarity 100.0%; Pred. No. 2.5e-24;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFLLRHDPGKVDGVRKSPHKLQQAERGVSIRKGV 45
 DB 88 YCKNGGFLLRHDPGKVDGVRKSPHKLQQAERGVSIRKGV 132

RESULT 5
 A31674
 basic fibroblast growth factor precursor - rat
 M:Alternate names: bFGF
 C:Species: Rattus norvegicus (Norway rat)
 C:Date: 21-May-1990 #sequence revision 21-May-1990 #text change 16-Jul-1999
 C:Accession: A31674; S00876; S24309
 R:Shinasaki, S.; Emoto, N.; Koba, A.; Mercad, M.; Shibata, F.; Cooksey, K.; Baird, J.
 Biochem. Biophys. Res. Commun. 157, 256-263, 1988
 A>Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast gro
 A:Reference number: A31674; MUID:89061721
 A:Accession: A31674
 A:Molecule type: mRNA
 A:Residues: 1-154 <SHI>
 A:Cross-references: GB:M22427; NID:9204285; PIDN:AAA41210.1; PID:9204286
 R:Kurokawa, T.; Seno, M.; Igarashi, K.
 Nucleic Acids Res. 15, 5201, 1988
 A>Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.
 A:Reference number: S00876; MUID:88262516
 A:Accession: S00876
 A:Molecule type: mRNA

A:Residues: 1-154 <R>
A:Cross-references: EMBL:X07285; NID:g56203; PIDN:CAA30265.1; PID:g56204
R:El-Husseini, A.E.D.; Patterson, J.A.; Myal, Y.; Shih, R.P.C.
Biochim. Biophys. Acta 1131, 314-316, 1992
A:Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA cont
A:Reference number: S24309; MUID:92329546
A:Accession: S24309
A:Status: preliminary; translation not shown
A:Molecule type: mRNA
A:Residues: 35-154 <ELH>
A:Cross-references: EMBL:X61697; NID:g56143; PIDN:CAA43863.1; PID:g56144
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor
F:1-9/Domain: signal sequence #status predicted <SIG>
F:10-154/Product: basic fibroblast growth factor #status predicted <MAT>

Query Match 99.6%; Score 238; DB 2; Length 154;
Best Local Similarity 97.8%; Pred. No. 2.4e-24;
Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKLQQAERGVSISGV 45
Db 32 YCKNGFFLRHPDGRVDGVRKSDPHIKLQQAERGVSISGV 76

RESULT 6
C37360
basic fibroblast growth factor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
C:Accession: C37360
R:Hebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.
Dev. Biol. 138, 454-463, 1990
A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization
A:Reference number: A37360; MUID:90201563
A:Accession: C37360
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-154 <HEB>
A:Cross-references: GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239
C:Superfamily: fibroblast growth factor

Query Match 99.6%; Score 238; DB 2; Length 154;
Best Local Similarity 97.8%; Pred. No. 2.4e-24;
Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKLQQAERGVSISGV 45
Db 32 YCKNGFFLRHPDGRVDGVRKSDPHIKLQQAERGVSISGV 76

RESULT 7
A48834
basic fibroblast growth factor - chicken
C:Species: Gallus gallus (chicken)
C:Date: 01-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
C:Accession: A48834; S23636
R:Boyja, A.Z.; Meljers, C.; Zeller, R.
Dev. Biol. 157, 110-118, 1993
A:Title: Expression of alternatively spliced bFGF first coding exons and antisense mRNAs
A:Reference number: A48834; MUID:92426053
A:Accession: A48834
A:Status: preliminary
A:Molecule type: nucleic acid
A:Residues: 1-189 <BOR>
A:Experimental source: embryo
A>Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBIPI:131001)
R:Mitran, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
Development 109, 387-393, 1990
A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo.
A:Reference number: S23636; MUID:90382254

A:Accession: S23636
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 95-128 <MIT>
A:Cross-references: EMBL:X56804; NID:g62855; PIDN:CAA40139.1; PID:g62856
C:Superfamily: fibroblast growth factor

Query Match 97.1%; Score 232; DB 2; Length 189;
Best Local Similarity 97.8%; Pred. No. 1.9e-23;
Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKLQQAERGVSISGV 45
Db 67 YCKNGFFLRHPDGRVDGVRKSDPHIKLQQAERGVSISGV 111

RESULT 8
S31622
basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragme
C:Species: Monodelphis domestica
C:Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 12-Apr-1995
C:Accession: S31622
R:Kusewilt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.
submitted to the EMBL data library, September 1992
A:Description: Characterization of cDNA encoding basic fibroblast growth factor of th
A:Reference number: S31622
A:Accession: S31622
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-164 <KUS>
A:Cross-references: EMBL:Z15154
C:Superfamily: fibroblast growth factor

Query Match 96.7%; Score 231; DB 2; Length 164;
Best Local Similarity 95.6%; Pred. No. 2.2e-23;
Matches 43; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKLQQAERGVSISGV 45
Db 42 YCKNGFFLRHPDGRVDGVRKSDPHIKLQQAERGVSISGV 86

RESULT 9
A40117
basic fibroblast growth factor - African clawed frog
C:Species: Xenopus laevis (African clawed frog)
C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C:Accession: A40117; A29618
R:Kimmel, D.; Abraham, J.A.; Haaparanta, T.; Palisi, T.M.; Kirschner, M.W.
Science 242, 1053-1056, 1988
A:Title: The presence of fibroblast growth factor in the frog egg: its role as a natu
A:Reference number: A40117; MUID:89058621
A:Accession: A40117
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-155 <KIM>
A:Cross-references: GB:M18067; NID:g214177; PIDN:AAA49726.1; PID:g214178; GB:M21092
R:Kimmel, D.; Kirschner, M.
Cell 51, 869-877, 1987
A:Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification
A:Reference number: A29618; MUID:88052890
A:Accession: A29618
A:Molecule type: mRNA
A:Residues: 95-110, 112-155 <KIT>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor

Query Match 83.3%; Score 199; DB 1; Length 155;
Best Local Similarity 84.4%; Pred. No. 3.7e-19;
Matches 38; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

```

Oy      1 YCKNGGFLLRHPDGRVDGVRKSDPHIKLOLQAEERGVSISIKGV 45
          ||||| ||||| : ||||| ||||| ||||| ||||| :
Db      33 YCKNGGFLLRINS DGRVDGSRKSDSHIKLOLQAEERGVSISIKGI 77

RESULT 10
A60721
acidic fibroblast growth factor - golden hamster
N:Alternate names: heparin-binding growth factor 1
C:Species: Mesocricetus auratus (golden hamster)
C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C:Accession: A60721
R:Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
J. Cell. Biochem. 43, 17-26, 1990
A:Title: Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene and cDNA and its mc
A:Reference number: A60721; MUID:90270291
A:Accession: A60721
A:Status: not compared with conceptual translation
A:Molecule type: DNA
A:Residues: 1-155 <HAL>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding

Query Match      65.3%; Score 156; DB 1; Length 155;
Best Local Similarity 68.2%; Pred. No. 1.9e-13;
Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

Oy      1 YCKNGGFLLRHPDGRVDGVRKSDPHIKLOLQAEERGVSISIKG 44
          ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db      30 YCKNGGFLLRILPDGVDTGTRDRSDQHLOLSASEAGSEVYTIKG 73

RESULT 11
S04147
acidic fibroblast growth factor 1 - rat
N:Alternate names: heparin-binding growth factor 1
C:Species: Rattus norvegicus (Norway rat)
C:Date: 28-Feb-1990 #sequence_revision 28-Feb-1990 #text_change 16-Jul-1999
C:Accession: S04147
R:Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.
Nucleic Acids Res. 17, 2867, 1989
A:Title: The nucleotide sequence of rat heparin binding growth factor 1 (HRGF-1).
A:Reference number: S04147; MUID:85240051
A:Accession: S04147
A:Molecule type: mRNA
A:Residues: 1-155 <GDO>
A:Cross-references: EMBL:X14232; NID:956351; PIDN:CAA32448.1; PID:956352
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding

Query Match      65.3%; Score 156; DB 2; Length 155;
Best Local Similarity 68.2%; Pred. No. 1.9e-13;
Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

Oy      1 YCKNGGFLLRHPDGRVDGVRKSDPHIKLOLQAEERGVSISIKG 44
          ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db      30 YCKNGGFLLRILPDGVDTGTRDRSDQHLOLSASEAGSEVYTIKG 73

RESULT 12
D37360
acidic fibroblast growth factor - mouse
N:Alternate names: aFGF; FGF-1
C:Species: Mus musculus (house mouse)
C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
C:Accession: D37360; J05331
R:Heber, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.
Dev. Biol. 138, 454-463, 1990
A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization
A:Reference number: A37360; MUID:90201563

```

A:Accession: D37360
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-155 <HB>
A:Cross-references: GB:X30641; NID:g193284; PIDN:AAB37618.1; PID:g309236
R:Madala,.F.; Hackshaw, K.V.; Chiu, I.M.
Gene 179, 231-236, 1996
A>Title: Cloning and characterization of the mouse Fgf-1 gene.
A:Reference number: JCS231; MUID:97128312
A:Accession: JCS231
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-155 <MAD>
A:Cross-references: GB:U36456
C:Comment: This protein is an inducer of neovascularization in angiogenic disease incl

C:Genetics:
A:Gene: Fgf-1
A:introns: 57/1, 91/3
C:Superfamily: fibroblast growth factor

Query Match 65.3%; Score 156; DB 2; Length 155;
Best Local Similarity 68.2%; Pred. No. 1.9e-13;
Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

OY 1 YCKNGCFRLIHPDGRVDGVRKSDPHIKILOLQAEERGVSVIK 44
||| || | || | || | || | : || | || | || | || |
Db 30 YCSNGHFRLIPDGTVDTGTDRDPDHIOQLDSAGSEVYIK 73

RESULT 13
JM0055
fibloblast growth factor-1 - sheep
M:Alternate names: FGF-1
C:Species: Ovis sp. (sheep)
C>Date: 17-Jun-1998 #sequence_revision 10-Jul-1998 #text_change 07-May-1999
C:Accession: JM0055
B:Grubbs, T.W.; Ring, M.; Brown, E.; Palmer, C.; Belle, N.; Donkerkovic, D.; Chang, H.
Biochem. Biophys. Res. Commun. 246, 182-191, 1998
A>Title: Primary structure of ovine fibroblast growth factor-1 deduced by protein and
A:Reference number: JM0055; MUID:98262939
A:Accession: JM0055
A:Molecule type: mRNA
A:Residues: 1-155 <GRA>
C:Comment: This protein is a potent mitogenic factor for NIH 3T3 fibroblasts in the a
C:Superfamily: fibroblast growth factor

Query Match 64.4%; Score 154; DB 2; Length 155;
Best Local Similarity 67.4%; Pred. No. 3.5e-13;
Matches 29; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

OY 1 YCKNGCFRLIHPDGRVDGVRKSDPHIKILOLQAEERGVSVIK 43
||| || | || | || | || | : || | || | || | || |
Db 30 YCSNGHFRLIPDGTVDTGTDRDPDHIOQLDSAGSEVYIK 72

RESULT 14
AC0130
acidic fibroblast growth factor - chicken
M:Alternate names: endothelial cell growth factor
C:Species: Gallus gallus (chicken)
C>Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 16-Jul-1999
C:Accession: AC0130; S02639
R:Schnuerch, H.; Ristau, W.
Development 111, 1143-1154, 1991
A>Title: Differentiating and mature neurons express the acidic fibroblast growth factr
A:Reference number: AC0130; MUID:91347925
A:Accession: AC0130
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-155 <SCH>
A:Cross-references: GB:S63263; NID:g224372; PIDN:AAB19629.1; PID:g224373

R:Risan, W.; Gautschi-Sova, P.; Boehlen, P.
 EMBL J. 7, 959-962, 1988
 A:Title: Endothelial cell growth factors in embryonic and adult chick brain are related
 A:Reference number: S02639; MUID:88296438
 A:Accession: S02639
 A:Molecule type: protein
 A:Residues: 22-30,'X','32-44','X','46-48 <RIS>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor

Query Match 64.0%; Score 153; DB 2; Length 155;
 Best Local Similarity 67.4%; Pred. No. 4.8e-13;
 Matches 29; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKLQAEERGVSIR 43
 |||||
 DB 30 YCSNGHFLRILPDGKVDGTRDRSDQHQLQSAEDVGEYIK 72

RESULT 15

JH0476
 acidic fibroblast growth factor - pig (fragment)
 C:Species: Sus scrofa domestica (domestic pig)
 C:Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 16-Jul-1999
 C:Accession: JH0476; S20072
 R:Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W.
 Biochem. Biophys. Res. Commun. 180, 853-859, 1991
 A:Title: Amplification and sequencing of mRNA encoding acidic fibroblast growth factor
 A:Reference number: JH0476; MUID:92062117
 A:Accession: JH0476
 A:Molecule type: mRNA
 A:Residues: 1-152 <SCH>
 A:Cross-references: EMBL:X60317; NID:91873; PIDN:CAA42869.1; PID:91874
 A:Experimental source: heart
 A>Note: the hydrophobic core residues are packed around the internal symmetry axis
 C:Comment: This protein belongs to the fibroblast growth factor family.
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding
 F:22-28/Region: nuclear location signal
 F:133/Binding site: heparin (Lys) #status predicted

Query Match 61.9%; Score 148; DB 2; Length 152;
 Best Local Similarity 67.4%; Pred. No. 2.2e-12;
 Matches 29; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKLQAEERGVSIR 43
 |||||
 DB 30 YCSNGHFLRILPDGKVDGTRDRSDQHQLQSAEDVGEYIK 72

Search completed: November 9, 2000, 15:31:52
 Job time: 173 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:30:47 ; Search time 41.83 Seconds
(without alignments)
34.369 Million cell updates/sec

Title: US-09-266-543-1

Perfect score: 239
Sequence: 1 YCKNGGFRLRHDPGRVDGV.....PHIKLQDAEERGVSISIKGV 45

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues

Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_39.*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	239	100.0	137	1 FGF2_RABIT	P48799 oryctolagus
2	239	100.0	155	1 FGF2_BOVIN	P03969 bos taurus
3	239	100.0	155	1 FGF2_HUMAN	P09038 homo sapien
4	239	100.0	155	1 FGF2_SHEEP	P20030 ovis aries
5	238	99.6	154	1 FGF2_MOUSE	P15655 mus musculu
6	238	99.6	154	1 FGF2_RAT	P13109 rattus norv
7	232	97.1	158	1 FGF2_CHICK	P48800 gallus gall
8	231	96.7	156	1 FGF2_MONDO	P48798 monodelphis
9	199	83.3	155	1 FGF2_XENLA	P12826 xenopus lae
10	156	65.3	155	1 FGF1_MESAU	P14004 mesocricetu
11	156	65.3	155	1 FGF1_MOUSE	P10935 mus musculu
12	153	64.0	153	1 FGF1_CHICK	P19396 gallus gall
13	148	61.9	152	1 FGF1_PIG	P20002 sus scrofa
14	148	61.9	155	1 FGF1_HUMAN	P05330 homo sapien
15	146	61.1	155	1 FGF1_BOVIN	P03968 bos taurus
16	103	43.1	208	1 FGF6_MOUSE	P21658 mus musculu
17	102	42.7	208	1 FGF6_HUMAN	P10767 homo sapien
18	96	40.2	194	1 FGF4_CHICK	P48804 gallus gall
19	95	39.7	206	1 FGF4_BOVIN	P48803 bos taurus
20	94.5	39.5	256	1 FGF3_BRARE	P48802 brachydanio
21	94	39.3	264	1 FGF5_MOUSE	P15656 mus musculu
22	94	39.3	266	1 FGF5_RAT	P48807 rattus norv
23	90	37.7	202	1 FGF4_MOUSE	P11403 mus musculu
24	90	37.7	268	1 FGF5_HUMAN	P12034 homo sapien
25	85	35.6	206	1 FGF4_HUMAN	P08620 homo sapien
26	84.5	35.4	220	1 FGF3_CHICK	P48801 gallus gall
27	83	34.7	245	1 FGF3_MOUSE	P05524 mus musculu
28	82	34.3	187	1 FGF4_XENLA	P48805 xenopus lae
29	82	34.3	243	1 FGF4_HUMAN	P09212 homo sapien
30	80.5	33.7	247	1 FGF6_HUMAN	P09215 homo sapien
31	80.5	33.7	247	1 FGF6_MOUSE	P70379 mus musculu
32	79	33.1	192	1 FGF3_XENLA	P48806 xenopus lae
33	79	33.1	239	1 FGF3_HUMAN	P11487 homo sapien

34	77	32.2	208	1 FGF4_HUMAN	O15520 homo sapien
35	77	32.2	215	1 FGF4_RAT	P70492 rattus norv
36	76.5	32.0	237	1 FGF3_XENLA	P36386 xenopus lae
37	73	30.5	209	1 FGF4_MOUSE	O35565 mus musculu
38	71.5	29.9	209	1 FGF9_XENLA	O91875 xenopus lae
39	69.5	29.1	208	1 FGF9_HUMAN	P31371 homo sapien
40	69.5	29.1	208	1 FGF9_MOUSE	P54130 mus musculu
41	69.5	29.1	208	1 FGF9_RAT	P36364 rattus norv
42	67.5	28.2	207	1 FGF6_HUMAN	O43320 homo sapien
43	67.5	28.2	207	1 FGF6_RAT	O54769 rattus norv
44	66.5	27.8	194	1 FGF7_MOUSE	P36363 mus musculu
45	65.5	27.4	194	1 FGF7_HUMAN	P21781 homo sapien

ALIGNMENTS

```
RESULT 1
FGF2_RABIT
ID P48799; STANDARD; PRT; 137 AA.
AC 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DI 01-FEB-1996 (Rel. 33, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 (HBGF-2) (BASIC FIBROBLAST GROWTH
DE FACTOR) (BFGF) (PROSTATROPIN) (FRAGMENT).
GN FGF2
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=NEW ZEALAND WHITE; TISSUE=SMOOTH MUSCLE;
RX MEDLINE; 93343209.
RA Winkles J.A., Friesel R., Alberts G.F., Janet M.F., Liu G.;
RT "Elevated expression of basic fibroblast growth factor in an
RT immortalized rabbit smooth muscle cell line.";
RL Am. J. Pathol. 143:518-527(1993).
CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -!- SUBUNIT: MONOMER.
CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@sib-sib.ch).
CC -----
CC EMBL: L12034; AAA31248.1; -
CC HSSP: P09038; 13PF.
CC INTERPRO: IPR002209; -.
CC DR PFAM; PF00167; FGF; 1.
CC DR PROSITE; PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Vascularization; Heparin-binding.
CC FT BINDING 18 22
CC FT NON_TER 107 110 HEPARIN (POTENTIAL).
CC FT BINDING 137 137 HEPARIN (POTENTIAL).
CC SQ SEQUENCE 137 AA; 15418 MW; 0D9E457B88EBC51 CRC64;

Query Match 100.0%; Score 239; DB 1; Length 137;
Best Local Similarity 100.0%; Pred. No. 3.6e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
1 YCKNGGFRLRHDPGRVDGVREKSPHIKQLQDAEERGVSISIKGV 45
|||||
```

DB 24 YCKNGGFRLRHPDGRVDSREKSPHKLQIAERGVYSLKGV 68

RESULT 2
ID FGF2_BOVIN STANDARD: PRT; 155 AA.
AC P03969;
DT 23-OCT-1986 (Rel. 02, Created)
DT 23-OCT-1986 (Rel. 02, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (HBGF) (PROSTATROPIN) [CONTAINS: KIDNEY-DERIVED GROWTH FACTOR].
GN FGF2 OR FGF-2.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
CC Bovidae; Bovinae; Bos.
[1]
RN SEQUENCE FROM N.A.
RX MEDLINE; 86261806.
RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,
RT Hierlild K.A., Gospodarowicz D., Fiddes J.C.;
RT "Nucleotide sequence of a bovine clone encoding the angiogenic
RT protein, basic fibroblast growth factor.";
RL Science 233:545-548(1986).
[2]
RN SEQUENCE FROM N.A.
RX MEDLINE; 87217066.
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
RT "Human basic fibroblast growth factor: nucleotide sequence, genomic
RT organization, and expression in mammalian cells.";
RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
[3]
RN SEQUENCE OF 10-155.
RX MEDLINE; 86016731.
RA Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R.,
RT Gospodarowicz D., Boehlen P., Guillemin R.;
RT "Primary structure of bovine pituitary basic fibroblast growth factor
RT (FGF) and comparison with the amino-terminal sequence of bovine brain
RT acidic FGF.";
RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
[4]
RN SEQUENCE OF 1-9.
RX MEDLINE; 86295737.
RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
RT "Isolation of an amino terminal extended form of basic fibroblast
RT growth factor.";
RL Biochem. Biophys. Res. Commun. 138:580-588(1986).
[5]
RN SEQUENCE OF 25-41.
RX TISSUE-KIDNEY;
RX MEDLINE; 86095426.
RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;
RT "Isolation and partial characterization of an endothelial cell growth
RT factor from the bovine kidney: homology with basic fibroblast growth
RT factor.";
RL Regul. Pept. 12:201-213(1985).
[6]
RN SEQUENCE OF 21-40.
RX TISSUE-KIDNEY;
RX MEDLINE; 87119165.
RA Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;
RT "Purification and partial characterization of a mitogenic factor from
RT bovine liver: structural homology with basic fibroblast growth
RT factor.";
RL Regul. Pept. 16:135-145(1986).
[7]
RN X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE; 91095983.
RA Zhu X., Komiyama H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RA Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth

RT factors.";
RL Science 251:90-93(1991).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@sib-sib.ch).

DR EMBL; M13440; AAA30518.1; -.
DR PIR; A24663; GKBOB.
DR PIR; A24819; A24819.
DR PIR; A32878; A32878.
DR PDB; 1BAS; 31-OCT-93.
DR INTERPRO: IPR002209; -.
DR INTERPRO: IPR002348; -.
DR PFAM; PF00167; IGF; 1.
DR PRINTS; PR00262; ILAHGF.
DR PRINTS; PR00263; HBGFEGF.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding;
KW 3D-structure.
FT PROPEP 1 9
FT CHAIN 10 155
FT CHAIN 25 155
FT SITE 46 48
FT SITE 88 90
FT BINDING 27 31
FT BINDING 116 119
FT STRAND 30 34
FT STRAND 35 38
FT STRAND 39 43
FT STRAND 45 46
FT STRAND 49 52
FT TURN 55 56
FT HELIX 58 60
FT STRAND 62 68
FT TURN 69 70
FT STRAND 71 76
FT STRAND 77 80
FT STRAND 81 85
FT TURN 87 88
FT STRAND 91 94
FT HELIX 99 101
FT STRAND 103 107
FT TURN 109 110
FT STRAND 113 117
FT STRAND 121 122
FT STRAND 124 124
FT STRAND 127 127
FT TURN 129 130
FT STRAND 133 133
FT STRAND 136 138
FT TURN 141 142
FT HELIX 144 146
FT STRAND 148 151
SO SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

Query Match 100.0%; Score 239; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 4, 2e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
QY      1 YCNRNGEFLRHPDGRVGVREKSPRIKIQLOAEERGVSICKV 45
      |||||||||||||||||||||||||||||||||||||||
DB      33 YCNRNGEFLRHPDGRVGVREKSPRIKIQLOAEERGVSICKV 77

RESULT 3
FGF2_HUMAN STANDARD; PRT; 155 AA.
AC P09038;
DT 01-NOV-1988 (Rel. 09, Created)
DT 01-NOV-1988 (Rel. 09, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
DE GROWTH FACTOR) (BFGF) (PROSTROPIN).
GN FGF2 OR FGFb.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.*
RX MEDLINE: 87053817.
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
RA Gospodarowicz D., Fiddes J.C.;
RT "Human basic fibroblast growth factor: nucleotide sequence and
RT genomic organization."
RL EMBO J. 5:2523-2528(1986).
[2]
RP SEQUENCE FROM N.A.
RX MEDLINE: 87217066.
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
RT "Human basic fibroblast growth factor: nucleotide sequence, genomic
RT organization, and expression in mammalian cells."
RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
[3]
RP SEQUENCE FROM N.A.
RX MEDLINE: 87213238.
RA Sommer A., Brewer M.T., Thompson R.C., Moscattelli D., Presta M.,
RA Rifkin D.B.;
RT "A form of human basic fibroblast growth factor with an extended
RT amino terminus."
RL Biochem. Biophys. Res. Commun. 144:543-550(1987).
[4]
RP SEQUENCE FROM N.A.
RX MEDLINE: 87162468.
RA Kurokawa T., Sasada R., Iwane M., Igarashi K.;
RT "Cloning and expression of cDNA encoding human basic fibroblast
RT growth factor."
RL FEBS Lett. 213:189-194(1987).
[5]
RP SEQUENCE FROM N.A.
RX MEDLINE: 89184522.
RA Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
RA Llaunay P., Chalou P., Tauber J.P., Amalric F., Smith J.A.,
RA Caput D.;
RT "High molecular mass forms of basic fibroblast growth factor are
RT initiated by alternative CUG codons."
RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
[6]
RP SEQUENCE OF 10-35.
RX MEDLINE: 86275260.
RA Gautschi P., Prater-Schroeder M., Boehlen P.;
RT "Partial molecular characterization of endothelial cell mitogens from
RT human brain: acidic and basic fibroblast growth factors."
RL FEBS Lett. 204:203-207(1986).
[7]
RP SEQUENCE OF 10-39.
RX MEDLINE: 86186784.
RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
RT "Human brain-derived acidic and basic fibroblast growth factors:
RT amino terminal sequences and specific mitogenic activities."
RL Biochem. Biophys. Res. Commun. 135:541-548(1986).
[8]
RP SEQUENCE OF 2-22.
RX MEDLINE: 87156686.
RA Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.;
RT "Amino terminal sequence of a large form of basic fibroblast growth
RT factor isolated from human benign prostatic hyperplastic tissue."
RL Biochem. Biophys. Res. Commun. 142:702-709(1987).
[9]
RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
RX MEDLINE: 91195367.
RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
RT "Three-dimensional structure of human basic fibroblast growth
RT factor."
RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
RX MEDLINE: 94004464.
RA Eriksson A.E., Cousens L.S., Matthews B.W.;
RT "Refinement of the structure of human basic fibroblast growth
RT at 1.6-A resolution and analysis of presumed heparin binding sites by
RT selenate substitution."
RL Protein Sci. 2:1274-1284(1993).
[11]
RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
RX MEDLINE: 91195368.
RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
RT "Three-dimensional structure of human basic fibroblast growth factor,
RT a structural homolog of interleukin 1 beta."
RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
[12]
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
RX MEDLINE: 92121151.
RA Ago H., Kitagawa Y., Fujishima A., Matsura Y., Katsube Y.;
RT "Crystal structure of basic fibroblast growth factor at 1.6-A
RT resolution."
RL J. Biochem. 110:360-363(1991).
[13]
RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
RX MEDLINE: 91095983.
RA Zhu X., Komlya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RA Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth
RT factors."
RL Science 251:90-93(1991).
[14]
RP STRUCTURE BY NMR.
RX MEDLINE: 97040521.
RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;
RT "High-resolution solution structure of basic fibroblast growth factor
RT determined by multidimensional heteronuclear magnetic resonance
RT spectroscopy."
RL Biochemistry 35:13552-13561(1996).
-1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
-1- SUBUNIT: MONOMER.
-1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
AFGF.
-1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
DR EMBL: M17599; AA52534.1; ALT_INIT.
DR EMBL: X04431; CA28027.1; -.
DR EMBL: X04433; CA28028.1; -.
DR EMBL: X04433; CA28028.1; -.
DR EMBL: M27968; AA52448.1; -.
DR EMBL: J04513; AA52533.1; ALT_INIT.
```

```
DR PIR: A25824; A25824.
DR PIR: A26642; A26642.
DR PIR: B24243; B24243.
DR PIR: B24301; B24301.
DR PIR: B32878; B32878.
DR PIR: S00297; S00297.
DR PDB: 2FGF; 15-APR-92.
DR PDB: 4FGF; 15-JUL-93.
DR PDB: 1FGA; 15-JUL-93.
DR PDB: 1BFB; 03-APR-96.
DR PDB: 1BFC; 03-APR-96.
DR PDB: 1BFF; 16-JUN-97.
DR PDB: 1BFG; 31-JAN-94.
DR PDB: 2BFG; 30-APR-94.
DR PDB: 1BIA; 08-NOV-96.
DR PDB: 1BID; 08-NOV-96.
DR MIM: 134920; -.
DR INTERPRO: IPR002209; -.
DR INTERPRO: IPR002348; -.
DR PFAM: PF00167; FGF, 1.
DR PRINTS: PR00262; ILIHGFG.
DR PRINTS: PR00263; HBGFEGF.
DR PROSITE: PS00247; HBGF_FGF, 1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding;
KM 3D-Structure.
FT PROPEP 1 9
FT CHAIN 10 155
FT SITE 46 48
FT SITE 88 90
FT BINDING 27 31
FT BINDING 116 119
FT BINDING 30 34
FT TURN 35 38
FT STRAND 39 43
FT TURN 45 46
FT STRAND 49 52
FT TURN 55 56
FT HELIX 58 60
FT STRAND 62 66
FT TURN 69 70
FT STRAND 71 76
FT TURN 77 80
FT STRAND 81 85
FT TURN 87 88
FT STRAND 91 94
FT HELIX 99 101
FT STRAND 103 107
FT TURN 109 110
FT STRAND 113 117
FT TURN 121 122
FT STRAND 124 124
FT STRAND 127 127
FT TURN 129 130
FT STRAND 132 133
FT HELIX 136 138
FT TURN 141 142
FT HELIX 144 146
FT STRAND 148 152
SQ SEQUENCE 155 AA; 17254 MM; BEGCEI3373007129 CRC64;

Query Match 100.0%; Score 239; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 4.2e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
```

```
QY 1 YKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVSISIKGV 45
DB 33 YKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVSISIKGV 77
```

```
RESULT 4
FGF2_SHEEP STANDARD; PRT; 155 AA.
IQ FGF2_SHEEP
```

```
AC P20003;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
DE GROWTH FACTOR) (BFGF) (PROSTATROPIN).
GN FGF2 OR FGF-2
OS Ovis aries (Sheep)
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
RN [1]
RP SEQUENCE FROM N.A.
RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
RL Submitted (SEP-1994) to the EMBL/Genbank/DBJ databases.
RN [2]
RP SEQUENCE OF 9-155.
RX MEDLINE; 88055577.
RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
RA Rubira M.R., Burgess A.W.;
RT "Primary structure of ovine pituitary basic fibroblast growth
factor."
RT FEBS Lett. 224:128-132(1987).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (see http://www.isb-sib.ch/announce/
CC or send an email to license@sib-sib.ch).
CC -----
CC EMBL: J36136; AAA31519.1; -.
CC DR PIR: S00185; S00185.
CC DR HSSP: P09038; 1BFF.
CC DR INTERPRO: IPR002209; -.
CC DR INTERPRO: IPR002348; -.
CC DR PFAM: PF00167; FGF, 1.
CC DR PRINTS: PR00262; ILIHGFG.
CC DR PRINTS: PR00263; HBGFEGF.
CC DR PROSITE: PS00247; HBGF_FGF, 1.
CC Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155
FT SITE 46 48
FT SITE 87 90
FT BINDING 27 31
FT BINDING 116 119
SQ SEQUENCE 155 AA; 17280 MM; B5F2364BA610606D CRC64;
```

```
Query Match 100.0%; Score 239; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 4.2e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
```

```
QY 1 YKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVSISIKGV 45
DB 33 YKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVSISIKGV 77
```

```
RESULT 5
FGF2_MOUSE STANDARD; PRT; 154 AA.
AC P15655;
DT 01-APR-1990 (Rel. 14, Created)
```

```

DT 01-APR-1990 (Rel. 14, Last sequence update)
DE 01-FEB-1996 (Rel. 33, Last annotation update)
DR HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
DE GROWTH FACTOR) (BGF) (PROSTATROPIN).
GN FGF2 OR FGF-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 90201563.
RA Hebert J.M., Basilio C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AREG.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M30644: AAA37621.1: -
DR PIR: C37360: C37360.
DR HSSP: P09038: 1BFF.
DR MGD: MGI:95516: FGF2.
DR INTERPRO: IPR002209: -
DR INTERPRO: IPR002348: -
DR PFAM: PF00167: FGF_1.
DR PRINTS: PR00262: ILHBGF.
DR PRINTS: PR00263: HBGF_FGF.
DR PROSITE: PS00247: HBGF_FGF; 1.
DR Growth factor; Mitogen; Vascularization; Heparin-binding.
FT CHAIN 1 9 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 10 154 HEPARIN (POTENTIAL).
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA: 17153 MW: 689F677416274388 CRC64;

Query Match 99.6%; Score 238; DB 1; Length 154;
Best Local Similarity 97.8%; Pred. No. 5,6e-25;
Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFLRIHPDGRVDGVRKSDPHIKQLQAEGRGVYSIGV 45
DB 32 YCKNGGFLRIHPDGRVDGVRKSDPHIKQLQAEGRGVYSIGV 76

RESULT 6
ID FGF2_RAT STANDARD: PRT; 154 AA.
AC P13109:
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 15-JUL-1998 (Rel. 36, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
DE GROWTH FACTOR) (BGF) (PROSTATROPIN).
GN FGF2 OR FGF-2
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]

```

```

RP SEQUENCE FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY;
RX MEDLINE: 89061721.
RA Shimazaki S., Enoto N., Koba A., Mercado M., Shibata F.,
RA Cooksey K., Baird A., Ling N.;
RT "Complementary DNA cloning and sequencing of rat ovarian basic
RT fibroblast growth factor and tissue distribution study of its mRNA.";
RL Biochem. Biophys. Res. Commun. 157:256-263(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE-BRAIN;
RX MEDLINE: 88262516.
RA Kurokawa T., Sano M., Igarashi K.;
RT "Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:5201-5201(1988).
RN [3]
RP SEQUENCE OF 1-28 FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;
RX MEDLINE: 97200905.
RA Pasumathil K.B.S., Jin Y., Cattini P.A.;
RT "Cloning of the rat fibroblast growth factor-2 promoter region and
RT its response to mitogenic stimuli in glioma C6 cells.";
RL J. Neurochem. 63:898-908(1997).
RN [4]
RP SEQUENCE OF 35-154 FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
RX MEDLINE: 92329546.
RA El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
RT "PCR detection of the rat brain basic fibroblast growth factor (bFGF)
RT mRNA containing a unique 3' untranslated region.";
RL Biochim. Biophys. Acta 1131:314-316(1992).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AREG.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M22427: AAA41210.1: -
DR EMBL: X07285: CA830265.1: -
DR EMBL: U78079: AAC53225.1: -
DR EMBL: X61697: CAA43863.1: -
DR PIR: S00876: S00876.
DR PIR: A31674: A31674.
DR HSSP: P09038: 1BFF.
DR INTERPRO: IPR002209: -
DR INTERPRO: IPR002348: -
DR PFAM: PF00167: FGF_1.
DR PRINTS: PR00262: ILHBGF.
DR PRINTS: PR00263: HBGF_FGF.
DR PROSITE: PS00247: HBGF_FGF; 1.
DR Growth factor; Mitogen; Vascularization; Heparin-binding.
FT CHAIN 1 9 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 10 154 HEPARIN (POTENTIAL).
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA: 17139 MW: 1A0F14FFA2308403 CRC64;

Query Match 99.6%; Score 238; DB 1; Length 154;
Best Local Similarity 97.8%; Pred. No. 5,6e-25;
Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```

```
QY 1 YCKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVVSIKGV 45
DB 32 YCKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVVSIKGV 76

RESULT 7
FGF2_CHICK
ID FGF2_CHICK STANDARD; PRT; 158 AA.
AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
DE GROWTH FACTOR) (BFGF).
GN FGF2 OR FGF-2.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 93246053.
RA Borja A.Z., Zeller R., Meljers C.;
RT "Expression of alternatively spliced bFGF first coding exons and
RT alternative mRNAs during chicken embryogenesis."
RL Dev. Biol. 157:110-118(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M85707; AAA8617.1; -.
DR HSSP: P09038; IBFF.
DR INTERPRO: IPR002209; -.
DR INTERPRO: IPR002348; -.
DR PFAM: PF00167; FGF_1.
DR PRINTS: PR00262; ILIHGF.
DR PRINTS: PR00263; HBGF_FGF.
DR PROSITE: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1 12
FT CHAIN 13 158
FT BINDING 30 34
FT BINDING 119 122
FT BINDING 138 AA; 17374 MW; 7869B684C1F1816 CRC64;
SQ SEQUENCE
```

```
Query Match 97.1%; Score 232; DB 1; Length 158;
Best Local Similarity 97.8%; Pred. No. 3.7e-24;
Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
```

```
QY 1 YCKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVVSIKGV 45
DB 36 YCKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVVSIKGV 80

RESULT 8
FGF2_MONDO
ID FGF2_MONDO STANDARD; PRT; 156 AA.
AC P4R798;
```

```
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
DE GROWTH FACTOR) (BFGF) (PROSTATROPIN).
GN FGF2.
OS Monodelphis domestica (short-tailed grey opossum).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 94296558.
RA Kusewitt D.F., Sebourn C.L.K., Sherburn T.E., Ley R.D.;
RT "Characterization of cDNA encoding basic fibroblast growth factor of
RT the marsupial Monodelphis domestica."
RL DNA Cell Biol. 13:549-554(1994).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: Z15154; CA78854.1; ALT_INIT.
DR HSSP: P09038; IBFF.
DR INTERPRO: IPR002209; -.
DR INTERPRO: IPR002348; -.
DR PFAM: PF00167; FGF_1.
DR PRINTS: PR00262; ILIHGF.
DR PRINTS: PR00263; HBGF_FGF.
DR PROSITE: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 156
FT BINDING 28 32
FT BINDING 117; 120
FT BINDING 156 AA; 17303 MW; 7E655FCC49BFF1209 CRC64;
SQ SEQUENCE
```

```
Query Match 96.7%; Score 231; DB 1; Length 156;
Best Local Similarity 95.6%; Pred. No. 5e-24;
Matches 43; Conservative 2; Mismatches 0; Indels 0; Gaps 0;
```

```
QY 1 YCKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVVSIKGV 45
DB 34 YCKNGGFLRIHPDGRVDGVRKSDPHIKILOAERGVVSIKGV 78

RESULT 9
FGF2_XENLA
ID FGF2_XENLA STANDARD; PRT; 155 AA.
AC P12226;
DT 01-OCT-1989 (Rel. 12, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST
DE GROWTH FACTOR) (BFGF).
GN FGF2 OR FGF-2.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidae; Pipidae;
OC Xenopodinae; Xenopus.
```

[1]
 RN SEQUENCE FROM N.A.
 RP MEDLINE: 89058621.
 RA Klinehan D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;
 RT "The presence of fibroblast growth factor in the frog egg: its role
 as a natural mesoderm inducer.";
 RL Science 242:1053-1056(1988).
 RN [2]
 RP SEQUENCE OF 95-155 FROM N.A.
 RX MEDLINE: 88052890.
 RA Klinehan D., Kirschner M.;
 RT "Synergistic induction of mesoderm by FGF and TGF-beta and the
 identification of an mRNA coding for FGF in the early Xenopus
 embryo.";
 RL Cell 51:869-877(1987).
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 between the Swiss Institute of Bioinformatics and the EMBL outstation -
 the European Bioinformatics Institute. There are no restrictions on its
 use by non-profit institutions as long as its content is in no way
 modified and this statement is not removed. Usage by and for commercial
 entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 or send an email to license@isb-sib.ch).
 CC
 DR EMBL: M18067; AAA49726.1; -
 DR PIR: A29618; A29618.
 DR PIR: A40117; A40117.
 DR HSP: P03038; 1BFF.
 DR INTERPRO: IPR002209; -
 DR INTERPRO: IPR002348; -
 DR PFM: PF00167; FGF; 1.
 DR PRINTS: PRO0262; TLHBBG.
 DR PRINTS: PRO0263; HBBGFG.
 DR PROSITE: PS00247; HBBG_FGF; 1.
 KW Growth factor; Mitogen; Vascularization; Heparin-binding.
 FT PROPEP 1 9
 FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.
 FT BINDING 27 31 HEPARIN (POTENTIAL).
 FT BINDING 116 119 HEPARIN (POTENTIAL).
 FT CONFLICT 111 111 MISSING (IN REF. 2).
 SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;
 Query Match 83.3%; Score 199; DB 1; Length 155;
 Best Local Similarity 84.4%; Pred. No. 9.8e-20;
 Matches 38; Conservative 3; Mismatches 4; Indels 0; Gaps 0;
 QY 1 YCKNGGFLRIHPDGRVGVREKSDPHIKLQLAERGVSIGKV 45
 Db 33 YCKNGGFLRIHPDGRVGVREKSDPHIKLQLAERGVSIGKV 77
 RESULT 10
 FGF1_MESAU STANDARD; PRT; 155 AA.
 AC P34004;
 DT 01-FEB-1994 (Rel. 28, Created)
 DT 01-FEB-1994 (Rel. 28, Last sequence update)
 DT 15-JUL-1999 (Rel. 38, Last annotation update)
 DE HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
 GROWTH FACTOR) (AFGF).
 GN FGF1 OR FGF-1.
 OS Mesocricetus auratus (Golden hamster).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
 OC Mesocricetus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 90270291.
 RA Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.;
 RT "Characterization of the hamster DDT-1 cell arGF/HBGF-I gene and cDNA
 and its modulation by steroids.";

RL J. Cell. Biochem. 43:17-26(1990).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
 THAN DOES BFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 DR PIR: A60721; A60721.
 DR HSP: P05230; 2AKX.
 DR INTERPRO: IPR002209; -
 DR INTERPRO: IPR002348; -
 DR PFM: PF00167; FGF; 1.
 DR PRINTS: PRO0262; TLHBBG.
 DR PRINTS: PRO0263; HBBGFG.
 DR PROSITE: PS00247; HBBG_FGF; 1.
 KW Growth factor; Mitogen; Vascularization; Heparin-binding.
 FT PROPEP 1 15
 FT CHAIN 16 155 BY SIMILARITY.
 FT BINDING 24 28 HEPARIN-BINDING GROWTH FACTOR 1.
 FT BINDING 113 116 HEPARIN (POTENTIAL).
 SQ SEQUENCE 155 AA; 17403 MW; 41E3EC760E412C05 CRC64;
 Query Match 65.3%; Score 156; DB 1; Length 155;
 Best Local Similarity 68.2%; Pred. No. 5.8e-14;
 Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;
 QY 1 YCKNGGFLRIHPDGRVGVREKSDPHIKLQLAERGVSIGKV 44
 Db 30 YCKNGGFLRIHPDGRVGVREKSDPHIKLQLAERGVSIGKV 73
 RESULT 11
 FGF1_MOUSE STANDARD; PRT; 155 AA.
 AC P10935;
 DT 01-JUL-1989 (Rel. 11, Created)
 DT 01-JUL-1989 (Rel. 11, Last sequence update)
 DT 15-JUL-1999 (Rel. 38, Last annotation update)
 DE HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
 GROWTH FACTOR) (AFGF).
 GN FGF1 OR FGF-1 OR FGFA.
 OS Mus musculus (Mouse), and Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX SPECIES-RAT;
 RA MEDLINE: 89240051.
 RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
 RT "The nucleotide sequence of rat heparin binding growth factor 1
 (HBGF-1).";
 RL Nucleic Acids Res. 17:2867-2867(1989).
 RN [2]
 RP SEQUENCE FROM N.A.
 RX SPECIES-MOUSE;
 RA MEDLINE: 90201563.
 RA Hebert J.M., Basilio C., Goldfarb M., Haub O., Martin G.R.;
 RT "Isolation of cDNAs encoding four mouse FGF family members and
 RT characterization of their expression patterns during embryogenesis.";
 RL Dev. Biol. 138:154-163(1990).
 RN [3]
 RP SEQUENCE FROM N.A.
 RX SPECIES-MOUSE;
 RA MEDLINE: 97128312.
 RA Madial F., Hackshaw K.V., Chiu I.M.;
 RT "Cloning and characterization of the mouse Fgf-1 gene.";
 RL Gene 173:231-235(1996).
 RN [4]
 RP SEQUENCE FROM N.A.
 RX SPECIES-MOUSE; STRAIN-BALB/C;

```

RX MEDLINE; 97094746.
RA Alam K.Y., Frosthalm A., Hackshaw K.V., Evans J.E., Rotter A.,
RA Chiu I.M.;
RT "Characterization of the 1b promoter of fibroblast growth factor 1
RT and its expression in the adult and developing mouse brain.";
RL J. Biol. Chem. 271:30263-30271(1996).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; X14232; CAA32448.1; -
DR EMBL; M30641; AAA37618.1; -
DR EMBL; U36459; AAC52869.1; -
DR EMBL; U36457; AAC52869.1; JOINED.
DR EMBL; U36458; AAC52869.1; JOINED.
DR EMBL; U67610; AAC52907.1; -
DR PIR; S04147; S04147.
DR PIR; D37360; D37360.
DR HSSP; P05230; 2AXM.
DR MGD; MGT:95515; FGF1.
DR INTERPRO; IPR002209; -
DR INTERPRO; IPR002348; -
DR PFAM; PF00167; FGF; 1.
DR PRINTS; PR00262; ILIHGF.
DR PRINTS; PR00263; HBGFPGF.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT CHAIN 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT BINDING 155 AA; 17418 MW; 8880E4FF0FB4161 CRC64;
SQ SEQUENCE 155 AA; 17418 MW; 8880E4FF0FB4161 CRC64;

Query Match 65.3%; Score 156; DB 1; Length 155;
Best Local Similarity 68.2%; Pred. No. 5.8e-14;
Matches 30; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

QY 1 YCKNGGFLRIHPDGRVGVREKSPHIKLOLAERGVYSIKG 44
DB 30 YCSNGGFLRIHPDGTVDGTRSDQHILOLSAEGVYIKG 73

RESULT 12
FGFL_CHICK STANDARD; PRT; 155 AA.
AC P19596;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
DE GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR).
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archoseura; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 91347925.
RA Schunrich H., Risau W.;
RT "Differentiating and mature neurons express the acidic fibroblast

```

```

RT growth factor gene during chick neural development.";
RL Development 111:1143-1154(1991).
RN [2]
RP SEQUENCE FROM N.A.
RA Martin G.R., Han J.K.;
RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
RN [3]
RP SEQUENCE OF 22-68.
RX MEDLINE; 88286438.
RA Risau W., Gautschi-Sova P., Boehlen P.;
RT "Endothelial cell growth factors in embryonic and adult chick brain
RT are related to human acidic fibroblast growth factor.";
RL EMO J. 7:959-962(1988).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; S63263; AAB19629.1; -
DR EMBL; U31863; AAB0310.1; -
DR EMBL; S63261; AAD13942.1; -
DR PIR; S02639; S02639.
DR HSSP; P05230; 2AXM.
DR INTERPRO; IPR002209; -
DR INTERPRO; IPR002348; -
DR PFAM; PF00167; FGF; 1.
DR PRINTS; PR00262; ILIHGF.
DR PRINTS; PR00263; HBGFPGF.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT CHAIN 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT BINDING 155 AA; 17322 MW; 8EDB70545E2B4365 CRC64;
SQ SEQUENCE 155 AA; 17322 MW; 8EDB70545E2B4365 CRC64;

Query Match 64.0%; Score 153; DB 1; Length 155;
Best Local Similarity 67.4%; Pred. No. 1.5e-13;
Matches 29; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

QY 1 YCKNGGFLRIHPDGRVGVREKSPHIKLOLAERGVYSIK 43
DB 30 YCSNGGFLRIHPDGKVDGTRSDQHILOLSAEDVGEVYIK 72

RESULT 13
FGFL_PIG STANDARD; PRT; 152 AA.
AC P20002;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
DE GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR)
DE (FRAGMENT).
OS Sus scrofa (Pig).
OG FGF1 OR FGF-1.
OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Sus.

```


[1]
RN SEQUENCE FROM N.A.
RP TISSUE-HEART.
RC MEDLINE: 92062117.
RA Schmidt W., Sharma H.S., Schott R.J., Schaper W.;
RT "Amplification and sequencing of mRNA encoding acidic fibroblast
RT growth factor (afgf) from porcine heart."
RL Biochem. Biophys. Res. Commun. 180:853-859(1991).
RN [2]
RP SEQUENCE OF 22-41.
RX MEDLINE: 89231704.
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethke N.,
RA Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and
RT canine hearts."
RL Eur. J. Biochem. 181:67-73(1989).
RN [3]
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BEGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC [4]
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC [5]
DR EMBL: X60317; CAA42869.1; -
DR PIR: S03954; S03954.
DR HSSP: P05230; ZAXM.
DR INTERPRO: IPR002209; -
DR PFAM: PF00167; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 >152 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 22 >152 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT CONFLICT 31 31 C -> S (IN REF. 2).
FT CONFLICT 39 39 R -> Y (IN REF. 2).
FT NON_TER 152 152
SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

Query Match 61.98; Score 148; DB 1; Length 152;
Best Local Similarity 67.48; Pred. No. 6,7e-13;
Matches 23; Conservative 3; Mismatches 11; Indels 0; Gaps 0;

QY 1 YCKNGGFLRIHPDGVYGVKSDPHIKLOLQAEKGVYSIK 43
Db 30 YCSNGHFLRLPDGYVDRSDQHQLQLSASVGEYIYK 72
II III III III III III III III III III III
ID FGF1_HUMAN STANDARD; PRT; 155 AA.
AC P05230; P07502;
DT 13-AUG-1987 (Rel. 05, Created)
DT 13-AUG-1987 (Rel. 05, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
DE GROWTH FACTOR) (AFGF) (BETA-ENDOTHELIAL CELL GROWTH FACTOR) (ECGF-
DE BETA).
GN FGF1 OR FGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 86261805.
RA Jaye M., Hawk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W.,
RA O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;
RT "Human endothelial cell growth factor: cloning, nucleotide sequence,
RT and chromosome localization."
RL Science 233:541-545(1986).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE-BRAIN STEM;
RX MEDLINE: 89343957.
RA Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;
RT "Cloning of the gene coding for human class 1 heparin-binding growth
RT factor and its expression in fetal tissues."
RL Mol. Cell. Biol. 9:2387-2395(1989).
RN [3]
RP SEQUENCE FROM N.A.
RC TISSUE-BRAIN STEM;
RX MEDLINE: 90265618.
RA Chiu I.M., Wang W.P., Lehtoma K.;
RT "Alternative splicing generates two forms of mRNA coding for human
RT heparin-binding growth factor 1."
RL Oncogene 5:755-762(1990).
RN [4]
RP SEQUENCE FROM N.A.
RX MEDLINE: 90073637.
RA Mergia A., Tischer E., Graves D., Tumolo A., Miller J.,
RA Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
RT "Structural analysis of the gene for human acidic fibroblast growth
RT factor."
RL Biochem. Biophys. Res. Commun. 164:1121-1129(1989).
RN [5]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92019819.
RA Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.;
RT "Cloning and sequence analysis of the human acidic fibroblast growth
RT factor gene and its preservation in leukemia patients."
RL Oncogene 6:1521-1529(1991).
RN [6]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92202857.
RA Li Y.L., Kha H., Golden J.A., Mischelisen A.A.J., Goetzl E.J.,
RA Turk E.J.;
RT "An acidic fibroblast growth factor protein generated by alternate
RT splicing acts like an antagonist."
RL J. Exp. Med. 175:1073-1080(1992).
RN [7]
RP SEQUENCE OF 1-154 FROM N.A.
RX MEDLINE: 94069734.
RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
RT "The expression of acidic fibroblast growth factor (heparin-binding
RT growth factor-1) and cytokine genes in human cardiac allografts and T
RT cells."
RL Transplantation 56:1177-1182(1993).
RN [8]
RP SEQUENCE OF 1-40 FROM N.A.
RX MEDLINE: 90365758.
RA Crumley G., Dionne C.A., Jaye M.;
RT "The gene for human acidic fibroblast growth factor encodes two
RT upstream exons alternatively spliced to the first coding exon."
RL Biochem. Biophys. Res. Commun. 171:7-13(1990).
RN [9]
RP SEQUENCE OF 16-155.
RX MEDLINE: 86296647.
RA Harper J.W., Stroud D.J., Lobb R.R.;
RT "Human class 1 heparin-binding growth factor: structure and homology
RT to bovine acidic brain fibroblast growth factor."
RL Biochemistry 25:4097-4103(1986).
RN [10]
RP SEQUENCE OF 16-155.
RX MEDLINE: 86295741.

RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
 RT "The complete amino acid sequence of human brain-derived acidic
 RL fibroblast growth factor.";
 RN Biochem. Biophys. Res. Commun. 138:611-617(1986).
 RP [11]
 RX SEQUENCE OF 16-155.
 RT MEDLINE: 87048871.
 RA Gautschi-Sova P., Mueller T., Boehlen P.;
 RT "Amino acid sequence of human acidic fibroblast growth factor.";
 RL Biochem. Biophys. Res. Commun. 140:874-880(1986).
 RN [12]
 RP SEQUENCE OF 16-47.
 RX MEDLINE: 86186784.
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
 RT "Human brain-derived acidic and basic fibroblast growth factors:
 RL amino terminal sequences and specific mitogenic activities.";
 RN Biochem. Biophys. Res. Commun. 135:541-548(1986).
 RP [13]
 RX SEQUENCE OF 16-49.
 RT MEDLINE: 86275260.
 RA Gautschi P., Frater-Schroeder M., Boehlen P.;
 RT "Partial molecular characterization of endothelial cell mitogens from
 RL human brain: acidic and basic fibroblast growth factors.";
 RN FEBS Lett. 204:203-207(1986).
 RP [14]
 RX X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
 RA Blaber M., Disalvo J., Thomas K.A.;
 RT "X-ray crystal structure of human acidic fibroblast growth factor.";
 RL Biochemistry 35:2086-2094(1996).
 RN [15]
 RP STRUCTURE BY NMR OF 24-155.
 RX MEDLINE: 94358885.
 RA Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.,
 RT "1H-NMR assignment and solution structure of human acidic fibroblast
 RL growth factor activated by inositol hexasulfate.";
 RN J. Mol. Biol. 242:81-98(1994).
 RP [16]
 RP STRUCTURE BY NMR OF 24-155.
 RX MEDLINE: 97107535.
 RA Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J.,
 RT "Three-dimensional structure of acidic fibroblast growth factor in
 RL solution: effects of binding to a heparin functional analog.";
 RN J. Mol. Biol. 264:162-178(1996).
 RP [17]
 RP STRUCTURE BY NMR OF 25-155.
 RX MEDLINE: 98387896.
 RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;
 RT "Solution structure of acidic fibroblast growth factor bound to 1,3,
 RL 6-naphthalenesulfonate: a minimal model for the anti-tumoral
 RT action of suramin and suradistas.";
 RN J. Mol. Biol. 281:899-915(1998).
 RP [1]
 RX IN VIVO AND HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC [1]
 RX SUBUNIT: MONOMER.
 CC [1]
 RX MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
 CC THAN DOES BGF.
 CC [1]
 RX SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC [1]
 RX THIS SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC [1]
 RX EMBL: M13361; AAA79245.1; -;
 DR EMBL: X51943; CAA36206.1; -;
 DR

DR EMBL: M30492; AAA52446.1; -;
 DR EMBL: M30490; AAA52446.1; JOINED.
 DR EMBL: M30491; AAA52446.1; JOINED.
 DR EMBL: M60515; AAA51672.1; -;
 DR EMBL: M60516; AAA51673.1; -;
 DR EMBL: M23087; AAA52638.1; -;
 DR EMBL: M23086; AAA52638.1; JOINED.
 DR EMBL: S67291; AAB29057.1; -;
 DR EMBL: X65778; CAA46661.1; -;
 DR PIR: A23553; A23553.
 DR PIR: A24243; A24243.
 DR PIR: A24301; A24301.
 DR PIR: A24662; A24662.
 DR PIR: A24820; A24820.
 DR PIR: A26386; A26386.
 DR PIR: A33665; A33665.
 DR PIR: S18217; S18217.
 DR PDB: 2AFG; 15-OCT-95.
 DR PDB: 1AXM; 22-APR-98.
 DR PDB: 2AXM; 22-APR-98.
 DR PDB: 1RML; 11-NOV-98.
 DR MIM: 131220; -;
 DR INTERPRO: IPR002209; -;
 DR INTERPRO: IPR003348; -;
 DR PFAM: PF00167; FGF, 1.
 DR PRINTS: PRO0262; ILHGF.
 DR PRINTS: PRO0263; HBGF.
 DR PROSITE: PS00247; HBGF_FGF, 1.
 KW Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
 KM 3D-structure.
 FT PROPEP 1 15
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
 FT MOD_RES 2 2 ACETYLATION.
 FT BINDING 24 28 HEPARIN (POTENTIAL).
 FT BINDING 113 116 HEPARIN (POTENTIAL).
 FT BINDING 113 116 HEPARIN (POTENTIAL).
 SQ SEQUENCE 155 AA; 17460 MW; F586E8BF09F1580 CRC64;
 QY 1 YCRNGEFLRIHPDGRVGRKSDPHIKLQDAEGRGVVS 43
 Db 30 YCSNGHFLRLPDGVDTGRSDQHILQLSAESVGEYIK 72
 RESULT 15
 FGF1_BOVIN STANDARD; PRT; 155 AA.
 AC P03968;
 DT 23-OCT-1986 (Rel. 02, Created)
 DT 01-MAR-1989 (Rel. 10, Last sequence update)
 DT 15-JUL-1999 (Rel. 38, Last annotation update)
 DE HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST
 DE GROWTH FACTOR) (AFGF) (PROSTATROPIN) (ENDOTHELIAL CELL GROWTH FACTOR
 DE BETA AND ALPHA CHAINS) (ACIDIC EYE-DERIVED GROWTH FACTOR II) (EDGF
 DE II).
 GN FGF1 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-RETINA;
 RX MEDLINE: 89083506.
 RA Hallay C., Coutois Y., Laurent M.;
 RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";
 RL Nucleic Acids Res. 16:10913-10913(1988).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE-RETINA;
 RC

RX MEDLINE: 89078619.
 RA Alterio J., Hailey C., Brou C., Soussi T., Courtois Y., Laurent M.;
 RT "characterization of a bovine acidic FGF cDNA clone and its
 RL expression in brain and retina.";
 RN FEBS Lett. 242:41-46(1988).
 [3]
 RP SEQUENCE OF 2-155.
 RX MEDLINE: 87016918.
 RA Burgess W.H., Mehman T., Marshak D.R., Fraser B.A., MacIag T.;
 RT "structural evidence that endothelial cell growth factor beta is the
 RL precursor of both endothelial cell growth factor alpha and acidic
 RT fibroblast growth factor.";
 RN Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
 [4]
 RP SEQUENCE OF 2-155.
 RX MEDLINE: 87026586.
 RA Crabb J.W., Arnes L.G., Carr S.A., Johnson C.M., Roberts G.D.,
 RA Bordoli R.S., McKeehan W.L.;
 RT "Complete primary structure of prostatropin, a prostate epithelial
 RL cell growth factor.";
 RN Biochemistry 25:4988-4993(1986).
 [5]
 RP SEQUENCE OF 16-155.
 RX MEDLINE: 86070224.
 RA Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,
 RA Disalvo J., Thomas K.;
 RT "Brain-derived acidic fibroblast growth factor: complete amino acid
 RL sequence and homologies.";
 RN Science 230:1385-1388(1985).
 [6]
 RP SEQUENCE OF 16-44, AND COMPOSITION.
 RX MEDLINE: 86055750.
 RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;
 RT "Acidic fibroblast growth factor (FGF) from bovine brain:
 RL amino-terminal sequence and comparison with basic FGF.";
 RN EMBO J. 4:1951-1956(1985).
 [7]
 RP SEQUENCE OF 16-56 FROM N.A.
 RX MEDLINE: 86261806.
 RA Abraham J.A., Mergia A., Whang J.L., Tumbolo A., Friedman J.,
 RA Hjertild K.A., Gospodarowicz D., Fiddes J.C.;
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic
 RL protein, basic fibroblast growth factor.";
 RN Science 233:545-548(1986).
 [8]
 RP SEQUENCE OF 16-45.
 RX MEDLINE: 89231704.
 RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethke N.,
 RA Sharma H.S., Schaper W.;
 RT "Isolation of heparin-binding growth factors from bovine, porcine and
 RL canine hearts.";
 RN Eur. J. Biochem. 181:67-73(1989).
 [9]
 RP SEQUENCE OF 1-18 FROM N.A.
 RA Philippe J.M., Renaud F., Desset S., Laurent M.;
 RL Submitted (JUL-1992) to the EMBL/GenBank/DBJ databases.
 [10]
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
 RX MEDLINE: 91095983.
 RA Zhu X., Komiyama H., Chirino A., Faham S., Fox G.M., Arakawa T.,
 RA Hsu B.T., Rees D.C.;
 RT "Three-dimensional structures of acidic and basic fibroblast growth
 RL factors.";
 RN Science 251:90-93(1991).
 [11]
 RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
 CC THAN DOES BFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC -----

CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: M33439; AAA30516.1; -
 DR EMBL: X13221; CAA31610.1; -
 DR EMBL: X14032; CAA32192.1; -
 DR EMBL: M35608; AAA30517.1; -
 DR EMBL: X66446; CAA47063.1; -
 DR EMBL: M97650; AAA30563.1; -
 DR EMBL: M97651; AAA30564.1; -
 DR PIR: A01385; GKE0A;
 DR PIR: A25043; A25043;
 DR PIR: B25043; B25043;
 DR PIR: C25043; C25043;
 DR PIR: A24477; A24477;
 DR PIR: B24663; B24663;
 DR PIR: S02102; S02102;
 DR PDB: 1BAR; 31-OCT-93.
 DR PDB: 1AFC; 31-OCT-93.
 DR INTERPRO: IPR002209; -
 DR INTERPRO: IPR002348; -
 DR PRAM: PR00167; FGF; 1.
 DR PRINTS: PR00262; ILIHGF.
 DR PRINTS: PR00263; HBGFEGF.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 KW Growth factor; Mitogen; Vascularization; Heparin-binding; Acetylation;
 KW 3D-structure.
 FT PROPEP 1 15
 FT CHAIN 2 155
 FT CHAIN 16 155
 FT CHAIN 22 155
 FT MOD_RES 2 2
 FT BINDING 24 28
 FT BINDING 113 116
 FT STRAND 27 31
 FT TURN 32 34
 FT STRAND 37 40
 FT TURN 42 43
 FT STRAND 46 49
 FT STRAND 55 57
 FT STRAND 59 61
 FT STRAND 63 69
 FT STRAND 71 73
 FT STRAND 79 82
 FT TURN 84 85
 FT STRAND 87 91
 FT HELIX 96 98
 FT STRAND 100 100
 FT STRAND 103 104
 FT TURN 106 107
 FT STRAND 110 111
 FT STRAND 113 114
 FT TURN 116 121
 FT STRAND 123 123
 FT STRAND 126 126
 FT TURN 128 129
 FT STRAND 132 132
 FT STRAND 134 134
 FT HELIX 135 137
 FT TURN 140 141
 FT TURN 144 145
 FT STRAND 147 150
 SQ SEQUENCE 155 AA; 17493 MM; F636641F189F9BFD CRC64;

Query Match 61.1%; Score 146; DB 1; Length 155;
 Best Local Similarity 65.1%; Pred. No. 1.3e-12;
 Matches 28; Conservative 5; Mismatches 10; Indels 0; Gaps 0;

QY 1 YCKNGFFLRIRHPDGRVGVREKSDPHIKIQLOAEERGVVSIX 43
|||:||||| ||| :||| ||| ||| |||
Db 30 YCKNGYFLRILPDTYDGTCKDRSDQHIQLOCAESTIGVYIX 72

Search completed: November 9, 2000, 15:40:13
Job time: 566 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OK protein - protein search, using sw model

Run on: November 9, 2000, 15:29:23 ; Search time 106.63 Seconds
(without alignments)
39.406 Million cell updates/sec

Title: US-09-266-543-1
Perfect score: 239
Sequence: 1 YCKNGGFRLRHDPGRVDV.....PHIKLQQAENRGVSIRKV 45

Scoring table: BLOSUM62
Gapop 10.0 , Gapept 0.5

Searched: 297973 seqs, 93374136 residues
Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: SPREMBL_14:*
2: sp_archaea:*
3: sp_bacteria:*
4: sp_fungi:*
5: sp_human:*
6: sp_invertebrate:*
7: sp_mhc:*
8: sp_mammal:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	239	100.0	196	6 P78443	P78443 homo sapien
2	238	99.6	130	6 O77767	O77767 canis faml
3	212	88.7	170	11 O60487	O60487 cavia porce
4	203	84.9	101	13 P79706	P79706 cynops pyir
5	156	65.3	114	4 O16443	O16443 homo sapien
6	156	65.3	114	4 O00527	O00527 homo sapien
7	118	49.4	59	4 O9UBK1	O9UBK1 homo sapien
8	109	45.6	59	4 O16089	O16089 homo sapien
9	109	45.6	60	4 O16588	O16588 homo sapien
10	106	45.6	70	11 O54837	O54837 mus musculu
11	98.5	41.2	146	13 O07659	O07659 gallus gall
12	95	39.7	206	13 O9YGD8	O9YGD8 oncorhynch
13	84	35.1	196	11 O9YH31	O9YH31 notophthalm
14	82	34.3	78	11 O35340	O35340 mus musculu
15	82	34.3	127	4 O99517	O99517 homo sapien
16	80.5	32.7	252	11 O89096	O89096 rattus norv
17	77.5	32.4	208	13 O9PYV1	O9PYV1 xenopus lae
18	76	31.8	243	13 O9W6A1	O9W6A1 gallus gall
19	74	31.0	212	13 O42407	O42407 gallus gall

20	70.5	29.5	121	11 O88825	O88825 mus musculu
21	70.5	29.5	121	11 O63402	O63402 rattus norv
22	67.5	28.2	123	4 O75846	O75846 homo sapien
23	66.5	27.8	194	6 P79150	P79150 canis faml
24	64.5	27.0	216	4 O95750	O95750 homo sapien
25	64.5	27.0	519	4 O60450	O60450 homo sapien
26	62	25.9	245	13 O9W6A2	O9W6A2 gallus gall
27	60.5	25.3	432	5 P91730	P91730 haemionch
28	60	25.1	784	10 O9ZP62	O9ZP62 cucumis sat
29	59.5	24.9	200	13 P79925	P79925 xenopus lae
30	59	24.7	192	4 O95830	O95830 homo sapien
31	57.5	24.1	320	10 O43404	O43404 brassica ol
32	57	23.8	1542	10 O9ZS84	O9ZS84 lycopersico
33	56.5	23.6	296	2 O86997	O86997 acinetobact
34	56	23.4	547	2 O9R2U4	O9R2U4 delinococcus
35	55	23.0	74	6 O77561	O77561 oryctolagus
36	55	23.0	295	1 O28705	O28705 archaeglob
37	55	23.0	375	5 O9UBR1	O9UBR1 ptychodera
38	55	23.0	1265	10 O41460	O41460 solanum tub
39	54.5	22.8	150	2 O52467	O52467 neisseria m
40	54	22.5	1259	10 O22326	O22326 arabidopsis
41	54	22.6	1259	10 O23102	O23102 arabidopsis
42	53.5	22.4	321	10 O22391	O22391 stellaria l
43	53.5	22.4	1092	10 O9SFP28	O9SFP28 arabidopsis
44	53.5	22.4	1301	10 O9SXC5	O9SXC5 arabidopsis
45	53	22.2	257	5 O9VPS1	O9VPS1 drosophila

ALIGNMENTS

RESULT 1
ID P78443 PRELIMINARY; PRT: 196 AA.
AC P78443;
DT 01-MAY-1997 (TrEMBLrel. 03, Created)
DT 01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
DT 01-JUN-2000 (TrEMBLrel. 14, Last annotation update)
DE 21 KDA BASIC FIBROBLAST GROWTH FACTOR (BFGF).
GN BFGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 89184522.
RA Priests H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
RA Llaunzun P., Chalon P., Tauber J.P., Amluric F., Smith J.A., Caput D.;
RT "High molecular mass forms of basic fibroblast growth factor are
RT initiated by alternative CUG codons";
RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
RN [2]
RP SEQUENCE OF 81-168 FROM N.A.
RX MEDLINE; 93038590.
RA Watson R., Anthony F., Pickett M., Lambden P., Masson G.M.,
RA Thomas E.J.;
RT "Reverse transcription with nested polymerase chain reaction shows
RT expression of basic fibroblast growth factor transcripts in human
RT granulosa and cumulus cells from in vitro fertilisation patients";
RL Biochem. Biophys. Res. Commun. 187:1227-1231(1992).
DR EMBL; J04513; AAA52532.1; -;
DR EMBL; S47380; AAD13853.1; -;
DR HSSP; P09038; 13PF.
DR INTERPRO; IPR001209; -;
DR INTERPRO; IPR002348; -;
DR PFM; PF00167; FGF; 1.
DR PRINTS; PR00262; ILHBF.
DR PRINTS; PR00263; HBGFEGF.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR PRODOM; PD000831; -; 1.
SQ SEQUENCE 196 AA; 21203 MW; D6B5447137E60343 CRC64;

Query Match 100.0%; Score 239; DB 4; Length 196;
 Best Local Similarity 100.0%; Pred. No. 6.2e-23;
 Matches 44; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEKRGVVSISKV 45
 74 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEKRGVVSISKV 118

Db 74 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEKRGVVSISKV 118

RESULT 2
 077767 PRELIMINARY; PRT; 130 AA.

ID 077767
 AC 077767;
 DT 01-NOV-1998 (TREMblrel. 08, last sequence update)
 DT 01-NOV-1998 (TREMblrel. 13, last annotation update)
 DT 01-MAY-2000 (TREMblrel. 13, last annotation update)
 DE BASIC FIBROBLAST GROWTH FACTOR (BFGF) (FGF-2) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENT).
 DE (FRAGMENT).
 DE BFGF.
 OS Canis familiaris (Dog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-ADRENAL GLAND;
 RA Trocha O.A., Jacobs R.M., Lamarre J.;
 RT "The role of bFGF in canine Hemangiosarcoma."
 RL Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.

-1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOTACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
 CC ONE HEPARIN SULFATE (BY SIMILARITY).
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC EMBL: AF060562; AAC35912.1; -.
 CC DR HSSP: P09038; 1BPF.
 CC DR INTERPRO: IPR002209; -.
 CC DR PFAM: PF00167; FGF, 1.
 CC DR PROSITE: PS00247; HBGF_FGF, 1.
 CC KW Growth factor; Mitogen; Vascularization; Heparin-binding; Phosphorylation; Developmental protein.
 CC FT NON_TER 1
 CC FT SITE 1
 CC FT BINDING 21 23 CELL ATTACHMENT SITE (POTENTIAL).
 CC FT BINDING 10 65 CELL ATTACHMENT SITE (POTENTIAL).
 CC FT BINDING 11 11 HEPARIN (BY SIMILARITY).
 CC FT BINDING 103 65 HEPARIN (BY SIMILARITY).
 CC FT MOD_RES 103 119 HEPARIN (BY SIMILARITY).
 CC FT MOD_RES 48 48 PHOSPHORYLATION (BY SIMILARITY).
 CC FT MOD_RES 96 96 PHOSPHORYLATION (BY SIMILARITY).
 CC FT NON_TER 130 130 PHOSPHORYLATION (BY SIMILARITY).
 CC SQ SEQUENCE 130 AA; 14902 MW; 21900876E878FAEA CRC64;

Query Match 99.6%; Score 238; DB 6; Length 130;
 Best Local Similarity 97.8%; Pred. No. 5.2e-23;
 Matches 44; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEKRGVVSISKV 45
 8 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEKRGVVSISKV 52

Db 8 YCKNGFFLRHPDGRVGVREKSDPHIKQLQAEKRGVVSISKV 52

RESULT 3
 060487 PRELIMINARY; PRT; 170 AA.
 ID 060487
 AC 060487;
 DT 01-NOV-1996 (TREMblrel. 01, created)

DT 01-MAY-2000 (TREMblrel. 13, last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
 DE FIBROBLAST GROWTH FACTOR 2 (FGF-2) (FIBROBLAST GROWTH FACTOR, BASIC) (BFGF) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENTS).
 DE FGF2.
 OS Cavia porcellus (Guinea pig).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Hystriognathi; Caviidae; Cavia.
 RN [1]
 RP SEQUENCE OF 53-170 FROM N.A.
 RC TISSUE-PROSTATE;
 RA Ricciardelli C.;
 RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING. MEDLINE: 89273508.
 RX Sommer A., Moscatelli D., Rifkin D.B.;
 RT "An amino-terminally extended and post-translationally modified form of a 25kD basic fibroblast growth factor."
 RL Blochem. Biophys. Res. Commun. 160:1267-1274(1989).
 RN [3]
 RP PARTIAL SEQUENCE, AND METHYLATION. MEDLINE: 91322114.
 RX Burgess W.H., Bizik J., Mehlman T., Quarto N., Rifkin D.B.;
 RT "Direct evidence for methylation of arginine residues in high molecular weight forms of basic fibroblast growth factor."
 RL Cell Regul. 2:87-93(1991).
 RN [4]
 RP CHARACTERIZATION. MEDLINE: 87269686.
 RX Moscatelli D., Joseph-Silverstein J., Manojas R., Rifkin D.B.;
 RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high molecular weight form of basic fibroblast growth factor."
 RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).
 CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOTACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
 CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGF1 AND AT LEAST ONE HEPARIN SULFATE (BY SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS, 18 KDA AND 25 KDA (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION INITIATION SITES. BOTH FORMS ARE ACTIVE.
 CC -1- PTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY. INTRODUCTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF PARTIAL AMINO-ACID SEQUENCING.
 CC EMBL: L75974; AA85394.1; ALT_FRAME.
 CC DR HSSP: P09038; 2EER.
 CC DR INTERPRO: IPR002209; -.
 CC DR INTERPRO: IPR002348; -.
 CC DR PFAM: PF00167; FGF, 1.
 CC DR PRINTS: PR00262; ILHBGF.
 CC DR PRINTS: PR00263; HBGF_FGF.
 CC DR PROSITE: PS00247; HBGF_FGF, 1.
 CC KW Growth factor; Mitogen; Vascularization; Heparin-binding; Alternative initiation; Methylation; Phosphorylation;
 CC KW Developmental protein.
 CC FT NON_TER 1
 CC FT NON_CONS 15, 16
 CC FT CHAIN <1, 170
 CC FT CHAIN 22, 170
 CC FT INIT_MER 22, 22
 CC FT DOMAIN 11, 14
 CC FT NON_CONS 50, 51

25 KDA BASIC FIBROBLAST GROWTH FACTOR.
 18 KDA BASIC FIBROBLAST GROWTH FACTOR.
 FOR 18 KDA FORM.
 POLY-ALA.

FT SITE 61 63 CELL ATTACHMENT SITE (POTENTIAL).
 FT SITE 103 105 CELL ATTACHMENT SITE (POTENTIAL).
 FT BINDING 50 51 HEPARIN (BY SIMILARITY).
 FT BINDING 105 105 HEPARIN (BY SIMILARITY).
 FT BINDING 143 159 HEPARIN (BY SIMILARITY).
 FT MOD_RES 4 4 METHYLATION (MONO- OR DI-).
 FT MOD_RES 6 6 METHYLATION (MONO- OR DI-).
 FT MOD_RES 8 8 METHYLATION (MONO- OR DI-).
 FT MOD_RES 88 88 PHOSPHORYLATION (BY SIMILARITY).
 FT MOD_RES 136 136 PHOSPHORYLATION (BY SIMILARITY).
 SO SEQUENCE 170 AA; 18354 MM; F36BDBC/365FE8E CRC64;

Query Match 88.7%; Score 212; DB 11; Length 170;
 Best Local Similarity 95.2%; Pred. No. 1.4e-19;
 Matches 40; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 4 NGGFFLRHPDGRVDGVRKSDPHIKLQDAERGVSIGV 45
 DB 51 NGGFFLRHPDGRVDGVRKSDPHIKLQDAERGVSIGV 92

RESULT 4
 ID P79706 PRELIMINARY; PRT; 101 AA.
 AC P79706;
 DT 01-MAY-1997 (TRENBLREL. 03, Created)
 DT 01-MAY-1997 (TRENBLREL. 03, Last sequence update)
 DT 01-MAY-2000 (TRENBLREL. 13, Last annotation update)
 DE BASIC FGF (FRAGMENT).
 OS Cynops pyrrhogaster (Japanese common newt).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-EMBRYO;
 RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,
 RA Kaneda T.;
 RT "Serial expression of the genes in a mesodermatizing ectoderms of
 RT early Cynops gastrula.";
 RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.
 DR EMBL; D89443; BA13958.1; -.
 DR HSSP; P09038; 28FF.
 DR INTERPRO: IPR002209; -.
 DR PFAM; PF00167; FGF_1.
 DR PROSITE; PS00247; HGF_FGF_1.
 FT NON_TER 1 1
 FT NON_TER 101 101
 SO SEQUENCE 101 AA; 11906 MM; 74A16C866C1F457A CRC64;

Query Match 84.9%; Score 203; DB 13; Length 101;
 Best Local Similarity 86.7%; Pred. No. 1.1e-18;
 Matches 39; Conservative 3; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVRKSDPHIKLQDAERGVSIGV 45
 DB 5 YCKNGFFLRHPDGRVDGVRKSDPHIKLQDAERGVSIGV 49

RESULT 5
 ID 016443 PRELIMINARY; PRT; 114 AA.
 AC 016443;
 DT 01-NOV-1996 (TRENBLREL. 01, Created)
 DT 01-NOV-1996 (TRENBLREL. 01, Last sequence update)
 DT 01-MAY-2000 (TRENBLREL. 13, Last annotation update)
 DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.

RX MEDLINE; 92152654.
 RA Gonczalewicz R.Z., Shidbata F., Barankiewicz T., Baird A.,
 RA Gonczalewicz A.M., Florkiewicz E., Shah N.;
 RT "Basic fibroblast growth factor gene expression.";
 RL Ann. N. Y. Acad. Sci. 638:109-126(1991).
 DR EMBL; S81809; CAB33978.1; -.
 DR HSSP; P09038; 18FF.
 DR INTERPRO: IPR002209; -.
 DR PFAM; PF00167; FGF_1.
 FT NON_TER 1 1
 FT NON_TER 114 114
 SO SEQUENCE 114 AA; 11670 MM; 88DCA49C774D61AA CRC64;

Query Match 65.3%; Score 156; DB 4; Length 114;
 Best Local Similarity 100.0%; Pred. No. 1.2e-12;
 Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGFFLRHPDGRVDGVRKSDPH 27
 DB 88 YCKNGFFLRHPDGRVDGVRKSDPH 114

RESULT 6
 ID 000527 PRELIMINARY; PRT; 114 AA.
 AC 000527;
 DT 01-JAN-1998 (TRENBLREL. 05, Created)
 DT 01-JAN-1999 (TRENBLREL. 09, Last sequence update)
 DT 01-MAY-2000 (TRENBLREL. 13, Last annotation update)
 DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
 GN FGF-2 OR FGF2.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-BLOOD;
 RA Handschug K., Glaeser C.;
 RT "Polymorphism in the 5' untranslated region of the FGF-2 gene: C to T
 RT transition (79 bp upstream of the first CTG codon).";
 RL Submitted (MAY-1997) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE-BLOOD;
 RA Handschug K., Archoukleh E., Glaeser C.;
 RT "Mutations in the 5' untranslated region of the FGF-2 gene:
 RT transitions G to A on position 19 and transversion G to C on position
 RT 97.";
 RL Submitted (NOV-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL; Y13458; CA813868.1; -.
 DR EMBL; AJ250952; CAB61690.1; -.
 DR HSSP; P09038; 18FF.
 DR INTERPRO: IPR002209; -.
 DR PFAM; PF00167; FGF_1.
 FT NON_TER 114 114
 FT NON_TER 114 114
 SO SEQUENCE 114 AA; 11688 MM; 98DC6381C1960CID CRC64;

Query Match 65.3%; Score 156; DB 4; Length 114;
 Best Local Similarity 100.0%; Pred. No. 1.2e-12;
 Matches 27; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGFFLRHPDGRVDGVRKSDPH 27
 DB 88 YCKNGFFLRHPDGRVDGVRKSDPH 114

RESULT 7
 ID 090BK1 PRELIMINARY; PRT; 59 AA.
 AC 090BK1;
 DT 01-MAY-2000 (TRENBLREL. 13, Created)
 DT 01-MAY-2000 (TRENBLREL. 13, Last sequence update)

DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN FGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 93181239.
RA Payson R.A., Canatan H., Chotani M.A., Wang W.P., Harris S.E.,
RA Myers R.L., Chiu I.M.,
RT "Cloning of two novel forms of human acidic fibroblast growth factor
RT (afgf) mRNA."
RL Nucleic Acids Res. 21:489-495(1993).
DR EMBL; 101487; AAA52447.1; -
DR EMBL; 101485; AAA52425.1; -
DR INTERPRO: IPR002209; -
DR PFM; PF00167; FGF; 1.
FT NON_TER
SQ SEQUENCE 59 AA; 6606 MW; 9894A5F64847148A CRC64;

Query Match 49.4%; Score 118; DB 4; Length 59;
Best Local Similarity 70.0%; Pred. No. 4e-06;
Matches 21; Conservative 3; Mismatches 6; Indels 0; Gaps 0;

OY 1 YCKNGGFLRIHPDGRVGVREKSDPH 30
DB 30 YCSNGGFLRIHPDGRVGVREKSDPH 59

RESULT 8
Q16089 PRELIMINARY; PRT; 59 AA.
AC 016089;
DT 01-NOV-1996 (TREMblrel. 01, Created)
DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
DT 01-MAY-2000 (TREMblrel. 13, Last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 94069734.
RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
RT "The expression of acidic fibroblast growth factor (heparin-binding
RT growth factor-1) and cytokine genes in human cardiac allografts and T
RT cells."
RL Transplantation 56:1177-1182(1993).
DR EMBL; S67294; AAB29059.1; -
DR HSSP; P05230; 2AXM.
DR INTERPRO: IPR002209; -
DR PFM; PF00167; FGF; 1.
FT NON_TER
SQ SEQUENCE 59 AA; 6595 MW; 9C8D3D1E6487148A CRC64;

Query Match 45.6%; Score 109; DB 4; Length 59;
Best Local Similarity 70.4%; Pred. No. 5.6e-07;
Matches 19; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

OY 1 YCKNGGFLRIHPDGRVGVREKSDPH 27
DB 30 YCSNGGFLRIHPDGRVGVREKSDPH 56

RESULT 9
Q16588 PRELIMINARY; PRT; 60 AA.
AC 016588;
DT 01-NOV-1996 (TREMblrel. 01, Created)
DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)

DT 01-MAY-2000 (TREMblrel. 13, Last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN FGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 94069734.
RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
RT "The expression of acidic fibroblast growth factor (heparin-binding
RT growth factor-1) and cytokine genes in human cardiac allografts and T
RT cells."
RL Transplantation 56:1177-1182(1993).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE; 92202857.
RA Li Y.L., Kha H., Golden J.A., Michelsen A.A.J., Goetzl E.J.,
RA Turk E.J.;
RT "An acidic fibroblast growth factor protein generated by alternate
RT splicing acts like an antagonist."
RL J. Exp. Med. 175:1073-1080(1992).
DR EMBL; S67292; AAB29058.1; -
DR EMBL; X65779; CAA46662.1; -
DR HSSP; P05230; 2AXM.
DR INTERPRO: IPR002209; -
DR PFM; PF00167; FGF; 1.
FT NON_TER
SQ SEQUENCE 60 AA; 6697 MW; B53E08C406484714 CRC64;

Query Match 45.6%; Score 109; DB 4; Length 60;
Best Local Similarity 70.4%; Pred. No. 5.7e-07;
Matches 19; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

OY 1 YCKNGGFLRIHPDGRVGVREKSDPH 27
DB 30 YCSNGGFLRIHPDGRVGVREKSDPH 56

RESULT 10
Q34837 PRELIMINARY; PRT; 70 AA.
ID 034837;
AC 034837;
DT 01-JUN-1998 (TREMblrel. 06, Created)
DT 01-JUN-1998 (TREMblrel. 06, Last sequence update)
DT 01-MAY-2000 (TREMblrel. 13, Last annotation update)
DE FIBROBLAST GROWTH FACTOR-1 (FRAGMENT).
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-C3H/HEN; TISSUE-LIVER;
RA Zhang Y.-X., Hackshaw K.V.;
RL Submitted (JUL-1997) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF012926; AAB94020.1; -
DR HSSP; P05230; 2AXM.
DR INTERPRO: IPR002209; -
DR PFM; PF00167; FGF; 1.
FT NON_TER
SQ SEQUENCE 70 AA; 7677 MW; D5FD16ACC498EBA6 CRC64;

Query Match 45.6%; Score 109; DB 11; Length 70;
Best Local Similarity 70.4%; Pred. No. 6.8e-07;
Matches 19; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

OY 1 YCKNGGFLRIHPDGRVGVREKSDPH 27
DB 44 YCSNGGFLRIHPDGRVGVREKSDPH 70

RESULT 11

ID	007659	PRELIMINARY:	PRT:	146 AA.
AC	007659:			
DT	01-NOV-1996 (TREMBLrel. 01, Created)			
DT	01-NOV-1996 (TREMBLrel. 01, last sequence update)			
DT	01-JUN-2000 (TREMBLrel. 14, last annotation update)			
DE	FIBROBLAST GROWTH FACTOR.			
GN	bFGF.			
OS	Gallus gallus (Chicken).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Archosauiria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;			
OC	Gallus.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE: 93246053.			
RA	Borja A.Z., Zeller R., Meljers C.;			
RT	"Expression of alternatively spliced bFGF first coding exons and			
RT	antisense mRNAs during chicken embryogenesis.";			
RL	Dev. Biol. 157:110-118(1993).			
RN	[2]			
RP	SEQUENCE OF 52-85 FROM N.A.			
RX	MEDLINE: 90382254.			
RA	Mitran E., Gruenbaum Y., Shohat H., Ziv T.;			
RT	"Fibroblast growth factor during mesoderm induction in the early chick			
RT	embryo.";			
RL	Development 109:387-393(1990).			
DR	EMBL: M95706; AAA48616.1; -.			
DR	EMBL: X56804; CAA40139.1; -.			
DR	HSSP: P09038; 2BFH.			
DR	INTERPRO: IPR002209; -.			
DR	INTERPRO: IPR002248; -.			
DR	PFAM: PF00167; FGF, 1.			
DR	PRINTS: PS00262; IL1HBGF.			
DR	PROSITE: PS00247; HBGF_FGF, 1.			
DR	PRODOM: PD000831; -; 1.			
SD	SEQUENCE 146 AA; 16182 MW; A7CB97BC8456E247 CRC64;			
Query Match	41.2%;	Score 98.5;	DB 13;	Length 146;
Best Local Similarity	56.1%;	Pred. No. 3.5e-05;		
Matches 23; Conservative	4;	Mismatches 7;	Indels 7;	Gaps 1
OY	5 GGFLRHPDGRVYDGVREKSDPHIKIQLOAERGVSIGV 45			
Db	35 GVLWERVPRDERVSAM-----VKIQLOAERGVSIGV 68			
RESULT 12				
ID	Q9YGD8	PRELIMINARY:	PRT:	206 AA.
AC	Q9YGD8:			
DT	01-MAY-1999 (TREMBLrel. 10, Created)			
DT	01-MAY-1999 (TREMBLrel. 10, last sequence update)			
DT	01-JUN-2000 (TREMBLrel. 14, last annotation update)			
DE	FIBROBLAST GROWTH FACTOR 6-RELATED PROTEIN.			
GN	FGF6.			
OS	Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Actinopterygii; Neopterygii; Teleostei; Euteleostei;			
OC	Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE: 99096461.			
RA	Rescan P. Y.;			
RT	"Identification of a fibroblast growth factor 6 (FGF6) gene in a non-			
RT	mammalian vertebrate: continuous expression of FGF6 accompanies muscle			
RT	fiber hyperplasia.";			
RL	Biochim. Biophys. Acta 1443:305-314(1998).			
DR	EMBL: Y16850; CAA76422.1; -.			
DR	HSSP: P09038; 1BFF.			
DR	INTERPRO: IPR001064; -.			
DR	INTERPRO: IPR002209; -.			
DR	INTERPRO: IPR002348; -.			

```
DR PFAM: PF00167; FGF; 1.  
DR PRINTS: PR00262; TLHABGE.  
DR PRINTS: PR00263; HBGEGF.  
DR PROSITE: PS00225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.  
DR PROSITE: PS00247; HBGF_FGF; 1.  
DR PRODOM: PD00831; -. 1.  
SQ SEQUENCE 206 AA; 23375 MW; BB883328F17EB6E4 CRC64;  
  
Query Match 39.7%; Score 95; DB 13; Length 206;  
Best Local Similarity 43.5%; Pred. No. 0.00014;  
Matches 20; Conservative 11; Mismatches 13; Indels 2; Gaps 2  
  
OY 1 YCKNG-GFFLRHPDGRVDGVRKSDPHKLQLQAEERGVSIKV 45  
||| ||| :||||| : : : :  
Db 87 YCNAGIGFLDYLPDGRINGVHNENQ-YSLIISTVERGVSVLYGV 131  
  
RESULT 13  
O9YH31 PRELIMINARY; PRT; 196 AA.  
ID O9YH31  
AC O9YH31;  
DT 01-MAY-1999 (TREMBLrel. 10; Created)  
DT 01-MAY-1999 (TREMBLrel. 10; Last sequence update)  
DT 01-JUN-2000 (TREMBLrel. 14; Last annotation update)  
DE PUTATIVE FIBROBLAST GROWTH FACTOR-4.  
OS Notophthalmus viridescens (Eastern newt) (Triturus viridescens).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
CC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae;  
NC Notophthalmus.  
RN [1]  
RP SEQUENCE FROM N.A.  
RA wel y.;  
RL "Putative Newt fibroblast Growth Factor-4.";  
RT Submitted (OCT-1996) to the EMBL/Genbank/DBJ databases.  
RU EMBL: U76998; AAC98812.1; .  
DR HSSP; P09038; 1BFF.  
DR INTERPRO: IPR001064; .  
DR INTERPRO: IPR002209; .  
DR INTERPRO: IPR002348; .  
DR PFAM: PF00167; FGF; 1.  
DR PRINTS: PR00262; TLHABGE.  
DR PRINTS: PR00263; HBGEGF.  
DR PROSITE: PS00225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.  
DR PROSITE: PS00247; HBGF_FGF; 1.  
DR PRODOM: PD00831; -. 1.  
SQ SEQUENCE 196 AA; 22033 MW; AC4688CD989CEAF CRC64;  
  
Query Match 35.1%; Score 84; DB 13; Length 196;  
Best Local Similarity 43.5%; Pred. No. 0.0024;  
Matches 20; Conservative 9; Mismatches 15; Indels 2; Gaps 2  
  
OY 1 YCKNG-GFFLRHPDGRVDGVRKSDPHKLQLQAEERGVSIKV 45  
||| ||| :||||| : : : :  
Db 77 YCNAGIGFLDYLPDGRIGHMSES-RYSLSLEISPERGVCMFGV 121  
  
RESULT 14  
O35340  
ID O35340 PRELIMINARY; PRT; 78 AA.  
AC O35340;  
DT 01-JAN-1998 (TREMBLrel. 05; Created)  
DT 01-JAN-1998 (TREMBLrel. 05; Last sequence update)  
DT 01-MAY-2000 (TREMBLrel. 13; Last annotation update)  
DE FIBROBLAST GROWTH FACTOR 12  
DE (FIBROBLAST GROWTH FACTOR-RELATED PROTEIN FGF-12B) (FRAGMENT).  
GN FGF12.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
RN [1]  
RP SEQUENCE FROM N.A.
```

RX MEDLINE: 97376484.
 RA Hartung H., Feldman B., Lovec H., Coulter F., Birnbaum D.,
 RT "Murine FGF-12 and FGF-13: expression in embryonic nervous system,
 RT connective tissue and heart."
 RL Mech. Dev. 64:31-39(1997).
 DR EMBL: AF020739; AAB71608.1; -.
 DR HSSP: P09038; IBFF.
 DR MGD: MGI:109183; Fgf12.
 DR INTERPRO: IPR002209; -.
 DR PFAM: PF00167; FGF; 1.
 FT NON_TER 78
 SQ SEQUENCE 78 AA; 8646 MW; AE681A7E18E80132 CRC64;

Query Match 34.3%; Score 82; DB 11; Length 78;
 Best Local Similarity 37.5%; Pred. No. 0.0021;
 Matches 15; Conservative 11; Mismatches 14; Indels 0; Gaps 0;

QY 6 GFFLRHPDGRVDGVRKSDPHIKLOLAERGVYSIKGV 45
 DB 20 GYFLQMHDPDGTIDGTKDNDSYDTLFNLIPVGLRVVAIQGV 59

RESULT 15
 ID 099517 PRELIMINARY; PRT; 127 AA.
 AC 099517;
 DT 01-MAY-1997 (TREMBlrel. 03, Created)
 DT 01-MAY-1997 (TREMBlrel. 03, Last sequence update)
 DE 01-MAY-2000 (TREMBlrel. 13, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR 12 (FRAGMENT).
 GN FGF12.
 OS Homo sapiens (Homo).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Coulter F., Pontarotti P., Roubin R., Hartung H., Goldfarb M.,
 RA Birnbaum D.;
 RL J. Mol. Evol. 0:0-0(0).
 DR EMBL: Z70276; CAA94240.1; -.
 DR HSSP: P03968; IAFI.
 DR INTERPRO: IPR002209; -.
 DR PFAM: PF00167; FGF; 1.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 FT NON_TER 1
 FT NON_TER 127
 SQ SEQUENCE 127 AA; 14478 MW; D97DCA67A3F2F2C CRC64;

Query Match 34.3%; Score 82; DB 4; Length 127;
 Best Local Similarity 37.5%; Pred. No. 0.0037;
 Matches 15; Conservative 11; Mismatches 14; Indels 0; Gaps 0;

QY 6 GFFLRHPDGRVDGVRKSDPHIKLOLAERGVYSIKGV 45
 DB 7 GYFLQMHDPDGTIDGTKDNDSYDTLFNLIPVGLRVVAIQGV 46

Search completed: November 9, 2000, 15:39:30
 Job time: 607 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:31:52 ; Search time 72.39 seconds
(without alignments)
18.410 Million cell updates/sec

Title: US-09-266-543-2

Sequence: 1 SNNNTYRSRKYSWYVALKR 21

Scoring table: BLOSUM62
Gapop: 10.0, Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database: PIR-65:*

1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	length	DB ID	Description
1	115	100.0	125	2 A32484	basic fibroblast g
2	115	100.0	137	2 I46711	fibroblast growth
3	115	100.0	146	1 S00185	basic fibroblast g
4	115	100.0	154	2 A31674	basic fibroblast g
5	115	100.0	154	2 C37360	basic fibroblast g
6	115	100.0	157	1 GKBOB	basic fibroblast g
7	112	97.4	155	1 A40117	basic fibroblast g
8	112	97.4	164	2 S31622	basic fibroblast g
9	112	97.4	210	2 A32398	basic fibroblast g
10	111	96.5	189	2 A48834	basic fibroblast g
11	111	96.5	187	2 S23595	embryonic fibrobla
12	69	60.0	192	2 S54407	embryonic fibrobla
13	69	60.0	192	2 S54407	acidic fibroblast
14	64	55.7	155	1 A60721	acidic fibroblast
15	64	55.7	155	1 S04147	acidic fibroblast
16	64	55.7	155	2 D37360	acidic fibroblast
17	63	54.8	194	2 I50710	acidic fibroblast
18	62	53.9	155	1 A33665	acidic fibroblast
19	62	53.9	155	1 A60130	acidic fibroblast
20	61	53.0	155	1 GKBOA	acidic fibroblast
21	61	53.0	155	1 JW0055	fibroblast growth
22	60	52.2	206	1 TVHUS	fibroblast growth
23	58	50.4	215	2 G02092	fibroblast growth
24	58	50.4	215	2 A46245	fibroblast growth
25	57	49.6	208	2 S20102	fibroblast growth
26	56	48.7	208	2 S14192	fibroblast growth
27	52.5	45.7	525	2 H71365	probable 11cC prot
28	52	45.2	264	2 A36207	fibroblast growth
29	52	45.2	266	2 S68144	fibroblast growth

30	52	45.2	267	1 TVHUF5	fibroblast growth
31	50	43.5	148	2 T32475	hypothetical prote
32	50	43.5	216	2 TC5972	fibroblast growth
33	49	42.6	202	1 TVMSHS	fibroblast growth
34	47	40.9	195	2 C70121	hypothetical prote
35	47	40.9	206	2 JC4268	fibroblast growth
36	46.5	40.4	181	2 H72853	fibroblast growth
37	46.5	40.4	182	2 T41779	EGF orf32 - Bombyx
38	46	40.0	844	2 T43112	hypothetical prote
39	45	39.1	96	2 D46289	keratinocyte growth
40	45	39.1	194	1 A36501	fibroblast growth
41	45	39.1	194	2 S26049	fibroblast growth
42	45	39.1	194	2 I48610	keratinocyte growth
43	45	39.1	237	1 S39582	transforming prote
44	45	39.1	628	2 D70722	hypothetical prote
45	44.5	38.7	3973	2 B71612	hypothetical prote

ALIGNMENTS

RESULT 1

A32484 basic fibroblast growth factor precursor, 25K - guinea pig (fragments)

C:Species: Cavia porcellus (guinea pig)

C>Date: 20-Oct-1989 #sequence_revision 20-Oct-1989 #text_change 15-Jun-1996

C:Accession: A32484

R:Sommer, A.; Moscatelli, D.; Rifkin, D.B.

Biochem. Biophys. Res. Commun. 160, 1267-1274, 1989

A:Title: An amino-terminally extended and post-translationally modified form of a 25K

A:Reference number: A32484; MWID:89273588

A:Accession: A32484

A>Status: preliminary; nucleic acid sequence not shown; not compared with conceptual

A:Molecule type: mRNA

A:Residues: 1-125 <SOM>

C:Superfamily: fibroblast growth factor

Query Match 100.0%; Score 115; DB 2; Length 125;

Best Local Similarity 100.0%; Pred. No. 7e-10;

Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNNTYRSRKYSWYVALKR 21

DB 79 SNNNTYRSRKYSWYVALKR 99

RESULT 2

I46711 fibroblast growth factor - rabbit (fragment)

C:Species: Oryctolagus cuniculus (domestic rabbit)

C>Date: 14-Feb-1997 #sequence_revision 14-Feb-1997 #text_change 16-Jul-1999

C:Accession: I46711

R:Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Llau, G.

Am. J. Pathol. 143, 518-527, 1993

A:Title: Elevated expression of basic fibroblast growth factor in an immortalized rat

A:Reference number: I46711; MWID:93343209

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-137 <MIN>

A:Cross-references: GB:I12034; NID:q165014; PIDN:AAA31248.1; PID:q165015

C:Superfamily: fibroblast growth factor

Query Match 100.0%; Score 115; DB 2; Length 137;

Best Local Similarity 100.0%; Pred. No. 7.6e-10;

Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNNTYRSRKYSWYVALKR 21

DB 100 SNNNTYRSRKYSWYVALKR 120

RESULT 3
S00185
basic fibroblast growth factor - sheep
N:Alternate names: prostatiropin
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C>Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
A:Accession: S00185
R:Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabrit, L.J.; Nice, E.C.; Rubira, M.R.; Burge
FEMS Lett. 224, 128-132, 1987
A>Title: Primary structure of ovine pituitary basic fibroblast growth factor.
A:Reference number: S00185; MUID:88055577
A:Accession: S00185
A:Molecule type: protein
A:Residues: 1-146 <SIM>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding; mitogen
F:107-110/Region: heparin binding #status predicted

Query Match 100.0%; Score 115; DB 1; Length 146;
Best Local Similarity 100.0%; Pred. No. 8.1e-10;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSKRYSSWYVALKR 21
Db 100 SNNYNTYRSKRYSSWYVALKR 120

RESULT 4
A31674
basic fibroblast growth factor precursor - rat

N:Alternate names: bFGF
C:Species: Rattus norvegicus (Norway rat)
C>Date: 21-May-1990 #sequence_revision 21-May-1990 #text_change 16-Jul-1999
A:Accession: A31674; S00876; S24309
R:Shimazaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.;
Biochem. Biophys. Res. Commun. 157, 256-263, 1988
A>Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth
A:Reference number: A31674; MUID:89061721
A:Accession: A31674
A:Molecule type: mRNA
A:Residues: 1-154 <SHI>
A:Cross-references: GB:M22427; NID:g204285; PIDN:AAA41210.1; PID:g204286
R:Kurokawa, T.; Seno, M.; Igarashi, K.
Nucleic Acids Res. 16, 5201, 1988
A>Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.
A:Reference number: S00876; MUID:88262516
A:Accession: S00876
A:Molecule type: mRNA
A:Residues: 1-154 <KUR>

A:Cross-references: EMBL:X07285; NID:g56203; PIDN:CAA30265.1; PID:g56204
R:El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
Biochim. Biophys. Acta 1131, 314-316, 1992
A>Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA cont
A:Reference number: S24309; MUID:92329546
A:Accession: S24309
A>Status: preliminary; translation not shown
A:Molecule type: mRNA
A:Residues: 35-154 <ELH>

A:Cross-references: EMBL:X61697; NID:g56143; PIDN:CAA43663.1; PID:g56144
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor
F:1-9/Domain: signal sequence #status predicted <SIG>
F:10-154/Product: basic fibroblast growth factor #status predicted <MAT>

Query Match 100.0%; Score 115; DB 2; Length 154;
Best Local Similarity 100.0%; Pred. No. 8.6e-10;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSKRYSSWYVALKR 21

Db 108 SNNYNTYRSKRYSSWYVALKR 128

RESULT 5

C37360
basic fibroblast growth factor - mouse
C:Species: Mus musculus (house mouse)
C>Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
A:Accession: C37360
R:Hebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.
Dev. Biol. 138, 454-463, 1990
A>Title: Isolation of cDNAs encoding four mouse FGF family members and characterizati
A:Reference number: A37360; MUID:90201563
A:Accession: C37360
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-154 <HHB>
A:Cross-references: GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239
C:Superfamily: fibroblast growth factor

Query Match 100.0%; Score 115; DB 2; Length 154;
Best Local Similarity 100.0%; Pred. No. 8.6e-10;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYNTYRSKRYSSWYVALKR 21
Db 108 SNNYNTYRSKRYSSWYVALKR 128

RESULT 6

GK80B
basic fibroblast growth factor precursor - bovine (fragment)
N:Alternate names: bFGF; kidney-derived growth factor; prostatiropin
C:Species: Bos primigenius taurus (cattle)
C>Date: 13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change 24-Nov-1999
A:Accession: A24663; A32878; A33784; A61551; A60310; A61094; A01386; A60316;
R:Abraham, J.A.; Merz, A.; Whang, J.L.; Tumolo, A.; Friedland, K.A.; G
Science 233, 545-548, 1986
A>Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic
A:Reference number: A94290; MUID:86261806
A:Accession: A24663
A:Molecule type: mRNA
A:Residues: 3-157 <ABR>
A:Cross-references: GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050
A:Experimental source: pituitary gland
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Merz, A.; Fiddes, J.C.
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
A>Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organizati
A:Reference number: A90924; MUID:87217066
A:Accession: A32878
A:Molecule type: mRNA
A:Residues: 3-157 <AB2>
R:Minier, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989
A>Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purifi
A:Reference number: A33784; MUID:90121211
A:Accession: A33784
A:Molecule type: protein
A:Residues: 1-14 <MTL>
A:Note: demonstration of a possible alternative initiator or splice junction
R:Bertolini, J.; Hearn, M.T.W.
Mol. Cell. Endocrinol. 51, 187-199, 1987
A>Title: Isolation, characterization and tissue localisation of an N-terminal-trunca
A:Reference number: A61550; MUID:87247652
A:Accession: A61550
A:Molecule type: protein
A:Residues: 16-35 <BER>
R:Ikeno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
Mol. Cell. Endocrinol. 49, 189-194, 1987
A>Title: Isolation and partial characterization of basic fibroblast growth factor fr

A:Reference number: A61551; MUID:87162856

A:Accession: A61551
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-41 <UE3>
 A:Experimental source: testes
 A>Note: This form appears to be identical to the renal form
 R:Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Guillemin, R.
 Regul. Pept. 16, 135-145, 1986
 A:Title: Purification and partial characterization of a mitogenic factor from bovine 11v
 A:Reference number: A60310; MUID:87119165
 A:Accession: A60310
 A:Molecule type: protein
 A:Residues: 23-35, 'X', 37-42 <UEN>
 A:Experimental source: liver
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986
 A:Title: Isolation of an amino terminal extended form of basic fibroblast growth factor.
 A:Reference number: A24819; MUID:86295737
 A:Contents: annotation
 A>Note: the amino end of this form was blocked; the peptide composition matched what was
 R:Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlén, P.
 Endocrinology 118, 82-90, 1986
 A:Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical
 A:Reference number: A61094; MUID:86081530
 A:Accession: A61094
 A:Molecule type: protein
 A:Residues: 12-25, 27-35, 'X', 37-40 <GOS>
 A:Experimental source: adrenal gland
 R:Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarc
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985
 A:Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and
 A:Reference number: A01386; MUID:86016731
 A:Accession: A01386
 A:Molecule type: protein
 A:Residues: 12-157 <ESC>
 A:Experimental source: pituitary gland
 R:Baird, A.; Esch, F.; Bohlén, P.; Ling, N.; Gospodarowicz, D.
 Regul. Pept. 12, 201-213, 1985
 A:Title: Isolation and partial characterization of an endothelial cell growth factor fro
 A:Reference number: A60316; MUID:86095426
 A:Accession: A60316
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-43 <BAI>
 A:Experimental source: kidney
 R:Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984
 A:Title: Isolation and partial molecular characterization of pituitary fibroblast growth
 A:Reference number: A22054; MUID:84298139
 A:Accession: A22054
 A:Molecule type: protein
 A:Residues: 12-26 <BOH>
 C:Comment: The acidic and basic fibroblast growth factors are the major endothelial-cell
 ell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating t
 C:Comment: This protein binds heparin more strongly than does aFGF.
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; hepari
 F:1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MAR1>
 F:12-157/Product: basic fibroblast growth factor, pituitary gamma form #status experiment
 F:16-157/Product: basic fibroblast growth factor, pituitary alpha form #status experimen
 F:23-157/Product: basic fibroblast growth factor, pituitary short form #status predicted
 F:27-157/Product: basic fibroblast growth factor, hepatic form #status experimental <MA
 F:29-33, 118-121/Region: heparin binding #status predicted
 F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably ac

RESULT 7
 basic fibroblast growth factor - African clawed frog
 C:Species: Xenopus laevis (African clawed frog)
 C>Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
 C:Accession: A40117; A29618
 R:Klimelman, D.; Abraham, J.A.; Haaprananta, T.; Paliel, T.M.; Kirschner, M.W.
 Science 242, 1053-1056, 1988
 A:Title: The presence of fibroblast growth factor in the frog egg: its role as a natu
 A:Reference number: A40117; MUID:89058621
 A:Accession: A40117
 A>Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-155 <KIT>
 A:Cross-references: GB:M8067; MID:9214177; PID:AAA49726.1; PID:9214178; GB:M21092
 R:Klimelman, D.; Kirschner, M.
 Cell 51, 869-877, 1987
 A:Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification
 A:Reference number: A29618; MUID:88052890
 A:Accession: A29618
 A:Molecule type: mRNA
 A:Residues: 95-110, 112-155 <KIT>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor

Query Match 97.4%; Score 112; DB 1; Length 155;
 Best Local Similarity 95.2%; Pred. No. 2.4e-09;
 Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 Oy 1 SNNYNTYRSKRKYSWYVALKR 21
 Db 109 ANNYNTYRSKRKYSWYVALKR 129

RESULT 8
 basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (firegme
 C:Species: Monodelphis domestica
 C>Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 12-Apr-1995
 C:Accession: S31622
 R:Kusewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.
 submitted to the EMBL Data Library, September 1992
 A:Description: Characterization of cDNA encoding basic fibroblast growth factor of th
 A:Reference number: S31622
 A:Accession: S31622
 A>Status: preliminary
 A:Molecule type: DNA
 A:Residues: 1-164 <KUS>
 A:Cross-references: EMBL:Z15154
 C:Superfamily: fibroblast growth factor

Query Match 97.4%; Score 112; DB 2; Length 164;
 Best Local Similarity 95.2%; Pred. No. 2.5e-09;
 Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 Oy 1 SNNYNTYRSKRKYSWYVALKR 21
 Db 118 SNNYNTYRSKRKYSWYVALKR 138

Query Match 100.0%; Score 115; DB 1; Length 157;
 Best Local Similarity 100.0%; Pred. No. 8.7e-10;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 Oy 1 SNNYNTYRSKRKYSWYVALKR 21
 Db 111 SNNYNTYRSKRKYSWYVALKR 131

RESULT 9
 basic fibroblast growth factor precursor, 22.5K form - human
 N:Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prostat
 N:Contents: basic fibroblast growth factor, 18K form
 C:Species: Homo sapiens (man)
 C>Date: 31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change 16-Jul-1999
 C:Accession: A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824;
 R:Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liaunus, P.; Chalo
 Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989

A:Title: High molecular mass forms of basic fibroblast growth factor are initiated by a
A:Reference number: A32398; MUID:89184522
A:Accession: A32398
A:Molecule type: mRNA
A:Residues: 1-210 <PRA>
A:Cross-references: GB:004513; NID:g183083; PID:AAA52531.1; PID:g459811
R:Shibata, F.; Baird, A.; Florkiewicz, R.Z.
Growth Factors 4, 277-287, 1991
A:Title: Functional characterization of the human basic fibroblast growth factor gene pr
A:Reference number: A61537; MUID:92110035
A:Accession: A61537
A:Molecule type: DNA
A:Residues: 1-114 <SHI>
A:Note: authors translated the codon GGA for residue 47 as Ala
R:Kurokawa, T.; Saseda, K.; Iwane, M.; Igarashi, K.
FEBS Lett. 213, 189-194, 1987
A:Title: Cloning and expression of cDNA encoding human basic fibroblast growth factor.
A:Reference number: A26642; MUID:87162468
A:Accession: A26642
A:Molecule type: mRNA
A:Residues: 56-210 <KUR>
A:Cross-references: GB:W27968; NID:g182562; PID:AAA52448.1; PID:g182563
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization
A:Reference number: A90924; MUID:87217066
A:Accession: B32878
A:Molecule type: mRNA
A:Residues: 56-210 <ABR>
A:Note: The authors translated the codon GAA for residue 108 as Gly
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; F
EMBO J. 5, 2523-2528, 1986
A:Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organizati
A:Reference number: S00297; MUID:87053817
A:Accession: S00297
A>Status: not compared with conceptual translation
A:Molecule type: DNA
A:Residues: 1-155 <AB2>
A:Note: The authors translated the codon GAA for residue 108 as Gly
R:Shimoyama, Y.; Gotob, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.
Jpn. J. Cancer Res. 82, 1263-1270, 1991
A:Title: Characterization of high-molecular-mass forms of basic fibroblast growth factor
rinogenesis.
A:Reference number: A54316; MUID:92091228
A:Accession: A54316
A:Molecule type: Protein
A:Residues: 'xx', 86-88, 'x', 90-91, 'x', 93-95 <SH3>
A:Experimental source: C-1121 hepatocellular carcinoma cell line
A:Note: sequence extracted from NCBI backbone (NCBI:P11595)
A:Accession: B54316
A:Molecule type: Protein
A:Residues: 'xx', 19, 'x', 21-29 <SH2>
A:Note: Sequence extracted from NCBI backbone (NCBI:P11594)
R:Fejge, J.J.; Bradley, J.D.; Fryburg, K.; Faris, J.; Cousens, L.C.; Barr, P.J.; Baird,
J.J. Cell Biol. 109, 3105-3114, 1989
A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylatio
A:Reference number: A33624; MUID:90078343
A:Accession: A33624
A>Status: Preliminary
A:Molecule type: Protein
A:Residues: 57-210 <PEI>
A:Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
Biochem. Biophys. Res. Commun. 142, 702-709, 1987
A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolate
A:Reference number: A25824; MUID:87156686
A:Accession: A25824
A:Molecule type: Protein
A:Residues: 57-77 <STO>
A:Experimental source: prostate
R:Gimenez-Gallo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 135, 541-548, 1986
A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
A:Reference number: A90122; MUID:86186784

C:Accession: A48834; S23636
 R:Bojia, A.Z.; Meijers, C.; Zeller, R.
 Dev. Biol. 157, 110-118, 1993
 A:Title: Expression of alternatively spliced bFGF first coding exons and antisense mRNAs
 A:Reference number: A48834; MUID:93246053
 A:Accession: A48834
 A:Status: preliminary
 A:Molecule type: nucleic acid
 A:Residues: 1-189 <BOR>
 A:Experimental source: embryo
 A>Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBIIP:131001)
 R:Mitani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
 Development 109, 387-393, 1990
 A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo.
 A:Reference number: S23636; MUID:90382254
 A:Accession: S23636
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 95-128 <MIT>
 A:Cross-references: EMBL:X56804; NID:962855; PIDN:CAA40139.1; PID:962856
 C:Superfamily: fibroblast growth factor

Query Match 96.5%; Score 111; DB 2; Length 189;
 Best Local Similarity 95.2%; Pred. No. 4e-09;
 Matches 20; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 SNNYNTYRSKRYSSWYALKR 21
 DB 143 SNNYNTYRSKRYSSWYALKR 163

RESULT 11
 S23595
 embryonic fibroblast growth factor - African clawed frog
 C:Species: Xenopus laevis (African clawed frog)
 C:Date: 19-Feb-1994 #sequence_revision 10-Nov-1995 #text_change 16-Jul-1999
 C:Accession: S23595
 R:Issacs, H.V.; Tannahill, D.; Slack, J.M.W.
 Development 114, 711-720, 1992
 A:Title: Expression of a novel FGF in the Xenopus embryo. A new candidate inducing factor
 A:Reference number: S23595; MUID:92315916
 A:Accession: S23595
 A:Molecule type: mRNA
 A:Residues: 1-187 <ISA>
 A:Cross-references: EMBL:X62593; NID:964692; PIDN:CAA44479.1; PID:964693
 C:Superfamily: fibroblast growth factor

Query Match 60.0%; Score 69; DB 2; Length 187;
 Best Local Similarity 66.7%; Pred. No. 0.0051;
 Matches 12; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

OY 2 NNYNTYRSKRYSSWYVAL 19
 DB 145 NNYNTYRSKRYPGMTIAL 162

RESULT 12
 S54407
 embryonic fibroblast growth factor II - African clawed frog
 C:Species: Xenopus laevis (African clawed frog)
 C:Date: 06-Sep-1996 #sequence_revision 13-Mar-1997 #text_change 17-Mar-2000
 C:Accession: S54407
 R:Issacs, H.V.; Tannahill, D.; Slack, J.M.W.
 Development 114, 711-720, 1992
 A:Title: Expression of a novel FGF in the Xenopus embryo. A new candidate inducing factor
 A:Reference number: S23595; MUID:92315916
 A:Accession: S54407
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-192 <ISA>
 A:Cross-references: EMBL:X62594; NID:9840919; PIDN:CAA44480.1; PID:9840920

C:Superfamily: fibroblast growth factor

Query Match 60.0%; Score 69; DB 2; Length 192;
 Best Local Similarity 66.7%; Pred. No. 0.0052;
 Matches 12; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

OY 2 NNYNTYRSKRYSSWYVAL 19
 DB 150 NNYNTYRSKRYPGMTIAL 167

RESULT 13
 JH0476
 acidic fibroblast growth factor - pig (fragment)
 C:Species: Sus scrofa domestica (domestic pig)
 C:Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 16-Jul-1999
 C:Accession: JH0476; S20072
 R:Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W.
 Biochem. Biophys. Res. Commun. 180, 853-859, 1991
 A:Title: Amplification and sequencing of mRNA encoding acidic fibroblast growth factor
 A:Reference number: JH0476; MUID:92062117
 A:Accession: JH0476
 A:Molecule type: mRNA
 A:Residues: 1-152 <SCH>
 A:Cross-references: EMBL:X60317; NID:91873; PIDN:CAA42869.1; PID:91874
 A:Experimental source: heart
 A>Note: the hydrophobic core residues are packed around the internal symmetry axis
 C:Comment: This protein belongs to the fibroblast growth factor family.
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding
 F:22-28/Region: nuclear location signal
 F:133/Binding site: heparin (Lys) #status predicted

Query Match 55.7%; Score 64; DB 2; Length 152;
 Best Local Similarity 50.0%; Pred. No. 0.022;
 Matches 11; Conservative 7; Mismatches 2; Indels 2; Gaps 1;

OY 2 NNYNTYRSKRYSSWYALKR 21
 DB 107 NNYNTYRSKRYAEKNWFGALKR 128

RESULT 14
 A60721
 acidic fibroblast growth factor - golden hamster
 N:Alternate names: heparin-binding growth factor 1
 C:Species: Mesocricetus auratus (golden hamster)
 C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
 C:Accession: A60721
 R:Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
 J. Cell. Biochem. 43, 17-26, 1990
 A:Title: Characterization of the hamster DDT-1 cell atGF/HGF-I gene and cDNA and its
 A:Reference number: A60721; MUID:90270291
 A:Accession: A60721
 A:Status: not compared with conceptual translation
 A:Molecule type: DNA
 A:Residues: 1-155 <HAL>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding

Query Match 55.7%; Score 64; DB 1; Length 155;
 Best Local Similarity 50.0%; Pred. No. 0.022;
 Matches 11; Conservative 7; Mismatches 2; Indels 2; Gaps 1;

OY 2 NNYNTYRSKRYSSWYALKR 21
 DB 107 NNYNTYRSKRYAEKNWFGALKR 128

RESULT 15

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:40:13 ; Search time 41.83 Seconds
(without alignments)
16.039 Million cell updates/sec

Title: US-09-266-543-2

Perfect score: 115
Sequence: 1 SNNYNTYRSRKYSWYVALKR 21

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues

Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database : SwissProt_39.*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	115	100.0	137	1 FGF2_RABIT	P48799 oryctolagus
2	115	100.0	154	1 FGF2_MOUSE	P15655 mus musculus
3	115	100.0	154	1 FGF2_RAT	P13109 rattus norv
4	115	100.0	155	1 FGF2_BOVIN	P03969 bos taurus
5	115	100.0	155	1 FGF2_SHEEP	P20003 ovis aries
6	112	97.4	155	1 FGF2_HUMAN	P09093 homo sapien
7	112	97.4	155	1 FGF2_XENLA	P12226 xenopus lae
8	112	97.4	156	1 FGF2_MONDO	P48798 monodelphis
9	111	96.5	158	1 FGF2_CHICK	P48800 gallus gall
10	69	60.0	187	1 FGFR_XENLA	P48805 xenopus lae
11	69	60.0	192	1 FGFR_XENLA	P20002 sus scrofa
12	64	55.7	152	1 FGFR_PIG	P34004 mesocricetu
13	64	55.7	155	1 FGFR_MSAU	P10935 mus musculu
14	64	55.7	155	1 FGFR_MOUSE	P48804 gallus gall
15	63	53.9	155	1 FGFR_CHICK	P19596 gallus gall
16	62	53.9	155	1 FGFR_CHICK	P05230 homo sapien
17	61	53.0	155	1 FGFR_HUMAN	P03968 bos taurus
18	61	53.0	155	1 FGFR_BOVIN	P08620 homo sapien
19	60	52.2	206	1 FGFR_HUMAN	O76060 homo sapien
20	59	51.3	207	1 FGFR_HUMAN	O81011 mus musculu
21	59	51.3	207	1 FGFR_MOUSE	O81812 rattus norv
22	59	51.3	207	1 FGFR_RAT	O90722 gallus gall
23	58	50.4	214	1 FGFR_CHICK	P55075 homo sapien
24	58	50.4	233	1 FGFR_HUMAN	P37227 mus musculu
25	58	50.4	268	1 FGFR_MOUSE	P10767 homo sapien
26	57	49.6	208	1 FGFR_HUMAN	P21658 mus musculu
27	56	48.7	208	1 FGFR_MOUSE	P15656 mus musculu
28	52	45.2	264	1 FGFR_MOUSE	P48807 rattus norv
29	52	45.2	266	1 FGFR_RAT	P12034 homo sapien
30	52	45.2	268	1 FGFR_HUMAN	O60228 homo sapien
31	50	43.5	216	1 FGFR_HUMAN	O70627 mus musculu
32	50	43.5	216	1 FGFR_MOUSE	P1403 mus musculu
33	49	42.6	202	1 FGFR_MOUSE	

34	48	41.7	413	1	L756_CAEEL	Q1184 caenorhabdi
35	47	40.9	206	1	FGFR_BOVIN	P48803 bos taurus
36	47	40.9	530	1	VC04_SPVKA	P32228 swinepox vi
37	46.5	40.4	181	1	FGFR_NPVAC	P41444 autographa
38	46	40.0	685	1	CRPI_PERRA	O25641 periplaneta
39	45	39.1	194	1	FGFR_HUMAN	P21781 homo sapien
40	45	39.1	194	1	FGFR_MOUSE	P36363 mus musculu
41	45	39.1	237	1	FGFR_XENLA	P36386 xenopus lae
42	45	39.1	628	1	Y135_MYCTU	O50398 mycobacteri
43	44	38.3	194	1	FGFR_SHEEP	P48808 ovis aries
44	44	38.3	207	1	FGFR_HUMAN	O43320 homo sapien
45	44	38.3	207	1	FGFR_RAT	O54769 rattus norv

ALIGNMENTS

```
RESULT 1
ID FGF2_RABIT STANDARD; PRT; 137 AA.
AC P48799;
DT 01-FEB-1996 (rel. 33, Created)
DT 01-FEB-1996 (rel. 33, Last sequence update)
DT 01-FEB-1996 (rel. 33, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 (HBGF-2) (BASIC FIBROBLAST GROWTH
DE FACTOR) (BFGF) (PROSTATROPIN) (FRAGMENT).
GN FGF2.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=NEW ZEALAND WHITE; TISSUE=SMOOTH MUSCLE;
RX MEDLINE: 93343709
RA Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Lian G.;
RT "Elevated expression of basic fibroblast growth factor in an
RT immortalized rabbit smooth muscle cell line."
RL Am. J. Pathol. 143:518-527(1993).
CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -!- SUBUNIT: MONOMER.
CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@sib-sib.ch).
CC -----
CC EMBL: L12034; AAA31248.1; -
CC DR HSSP: P09038; 13FF.
CC DR INTERPRO: IPR002209; -.
CC DR PFAM: PF00167; 5GF; 1.
CC DR PROSITE: PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Vascularization; Heparin-binding.
CC FT BINDING 18 22 HEPARIN (POTENTIAL).
CC FT BINDING 107 110 HEPARIN (POTENTIAL).
CC FT NON_TER 137 137
CC SEQUENCE 137 AA; 15418 MW; 0D9DEA57B88E8C51 CRC64;
```

Query Match 100.0%; Score 115; DB 1; Length 137;

Best local similarity 100.0%; Pred. No. 1,3e+10;

Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 SNNYNTYRSRKYSWYVALKR 21

Db 100 SNNYTYRSKYSWYALKR 120

RESULT 2

FGF2_MOUSE STANDARD; PRT; 154 AA.

DT 01-APR-1990 (Rel. 14, Created)

DT 01-APR-1990 (Rel. 14, Last sequence update)

DT 01-FEB-1996 (Rel. 33, Last annotation update)

DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).

GN FGF2 OR FGF-2.

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

RN [1]

RP SEQUENCE FROM N.A.

RC MEDLINE; 90201563.

RX MEDLINE; 90201563.

RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;

RT "Isolation of cDNAs encoding four mouse FGF family members and characterization of their expression patterns during embryogenesis.";

RL Dev. Biol. 138:445-463(1990).

RN [1]

RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).

CC -----

CC EMBL; M30644; AAA37621.1; -

CC PIR; C37360; C37360.

CC HSSP; P09038; 1BFF.

CC MGD; MGI:95516; FGF2.

CC INTERPRO: IPR002309; -

CC INTERPRO: IPR002348; -

CC PFAM; PF00167; FGF; 1.

CC PRINTS; PR00262; ILIHGF.

CC PRINTS; PR00263; HBGFGEF.

CC PROSITE; PS00247; HBGF_FGF; 1.

CC Growth factor; Mitogen; Vascularization; Heparin-binding.

CC PROPEP 1 9

CC CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.

CC BINDING 26 30 HEPARIN (POTENTIAL).

CC BINDING 115 118 HEPARIN (POTENTIAL).

CC SEQUENCE 154 AA; 17153 MW; 689F677416274388 CRC64;

SO

Query Match 100.0%; Score 115; DB 1; Length 154;

Best Local Similarity 100.0%; Pred. No. 1,5e-10;

Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNYTYRSKYSWYALKR 21

Db 108 SNNYTYRSKYSWYALKR 128

RESULT 3

FGF2_RAT STANDARD; PRT; 154 AA.

AC P13109;

DT 01-JAN-1990 (Rel. 13, Created)

DT 01-JAN-1990 (Rel. 13, Last sequence update)

DT 15-JUL-1998 (Rel. 36, Last annotation update)

DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).

GN FGF2 OR FGF-2.

OS Rattus norvegicus (Rat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN-SPRAGUE-DAWLEY; TISSUE-OVARY;

RX MEDLINE; 89061721.

RA Shimazaki S., Eroto N., Koba A., Mercado M., Shibata F.,

RA Cooney K., Baird A., Ling N.;

RT "Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA.";

RL Biochem. Biophys. Res. Commun. 157:256-263(1988).

RN [2]

RP SEQUENCE FROM N.A.

RC TISSUE-BRAIN;

RX MEDLINE; 86262516.

RA Kurikawa T., Seno M., Igarashi K.;

RT "Nucleotide sequence of rat basic fibroblast growth factor cDNA.";

RL Nucleic Acids Res. 16:5201-5201(1988).

RN [3]

RP SEQUENCE OF 1-28 FROM N.A.

RC STRAIN-SPRAGUE-DAWLEY; TISSUE-TESTIS;

RX MEDLINE; 97200905.

RA Pasumarthi K.B.S., Jin Y., Cattini P.A.;

RT "Cloning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells.";

RL J. Neurochem. 68:898-908(1997).

RN [4]

RP SEQUENCE OF 35-154 FROM N.A.

RC STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;

RX MEDLINE; 92329546.

RA El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;

RT "PCR detection of the rat brain basic fibroblast growth factor (bfgf) mRNA containing a unique 3' untranslated region.";

RL Biochim. Biophys. Acta 1131:314-316(1992).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).

CC -----

CC EMBL; M22427; AAA41210.1; -

CC EMBL; X07285; CAA30265.1; -

CC EMBL; U78079; AAC53225.1; -

CC EMBL; X61697; CAA3865.1; -

CC PIR; S00876; S00876.

CC PIR; A31674; A31674.

CC HSSP; P09038; 1BFF.

CC INTERPRO: IPR002209; -

CC INTERPRO: IPR002348; -

CC PFAM; PF00167; FGF; 1.

CC PRINTS; PR00262; ILIHGF.

CC PRINTS; PR00263; HBGFGEF.

CC PROSITE; PS00247; HBGF_FGF; 1.

CC Growth factor; Mitogen; Vascularization; Heparin-binding.

CC PROPEP 1 154

CC CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2

FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA: 17139 MW: 1A0F14FF423D8403 CRC64;

Query Match 100.0%; Score 115; DB 1; Length 154;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNNTYRSKRKYSWYVALR 21
DB 108 SNNNTYRSKRKYSWYVALR 128

RESULT 4
FGF2_BOVIN STANDARD: PRT: 155 AA.
ID P03969;
AC 23-OCT-1986 (Rel. 02, Created)
DT 23-OCT-1986 (Rel. 02, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BGF) (PROSTATOPIN) [CONTAINS: KIDNEY-DERIVED GROWTH FACTOR].
DE FGF2 OR FGF-2.
GN Bos taurus (Bovine).
OS Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
RN [1]
RX MEDLINE: 86261806.
RA Abraham J.A., Whang J.L., Tumolo A., Friedman J.,
RT Hjertrid K.A., Gospodarowicz D., Fiddes J.C.;
RT "Nucleotide sequence of a bovine clone encoding the angiogenic
RT protein, basic fibroblast growth factor";
RT Science 233:545-548(1986).
RN [2]
RX MEDLINE: 87217066.
RA Abraham J.A., Whang J.L., Tumolo A., Fiddes J.C.;
RT "Human basic fibroblast growth factor: nucleotide sequence, genomic
RT organization, and expression in mammalian cells";
RT Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
RN [3]
RX MEDLINE: 86016731.
RA Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R.,
RT Gospodarowicz D., Boehlen P., Guillemin R.;
RT "Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain
RT acidic FGF";
RT Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
RN [4]
RX MEDLINE: 86295737.
RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
RT "Isolation of an amino terminal extended form of basic fibroblast
RT growth factor";
RT Biochem. Biophys. Res. Commun. 138:580-588(1986).
RN [5]
RX MEDLINE: 86095426.
RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;
RT "Isolation and partial characterization of an endothelial cell growth
RT factor from the bovine kidney: homology with basic fibroblast growth
RT factor";
RT Regul. Pept. 12:201-213(1985).
RN [6]
RX MEDLINE: 87119165.

RA Ueno N., Baird A., Esch F., Shimazaki S., Ling N., Guillemin R.;
RT "Purification and partial characterization of a mitogenic factor from
RT bovine liver: structural homology with basic fibroblast growth
RT factor";
RT Regul. Pept. 16:135-145(1986).
RN [7]
RX MEDLINE: 91095983.
RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RT Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth
RT factors";
RT Science 251:90-93(1991).
CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC
CC EMBL: M13440; AAA0518.1; -
CC PIR: A24663; GKBOB.
DR PIR: A24819; A24819.
DR PIR: A32878; A32878.
DR PDB: 1BAS; 31-OCT-93.
DR INTERPRO: IPR002209; -
DR INTERPRO: IPR002348; -
DR PFAM: PF00167; FGF_1.
DR PRINTS: PR00262; ILAHGF.
DR PRINTS: PR00263; HBGF2.
KW PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding;
KW 3D-structure.
FT FT 1 9
FT CHAIN 10 155
FT SITE 25 135
FT SITE 46 48
FT SITE 88 90
FT BINDING 27 31
FT BINDING 116 119
FT STRAND 30 34
FT STRAND 35 38
FT STRAND 39 43
FT STRAND 45 46
FT STRAND 49 52
FT STRAND 55 56
FT STRAND 58 60
FT STRAND 62 68
FT STRAND 69 70
FT STRAND 71 76
FT STRAND 77 80
FT STRAND 81 85
FT STRAND 87 88
FT STRAND 91 94
FT STRAND 99 101
FT HELIX 103 107
FT STRAND 109 110
FT STRAND 113 117
FT STRAND 121 122
FT STRAND 124 124
FT STRAND 127 127
FT STRAND 129 130
FT STRAND 133 133
HEPARIN-BINDING GROWTH FACTOR 2.
KIDNEY-DERIVED GROWTH FACTOR.
CELL ATTACHMENT SITE (POTENTIAL).
CELL ATTACHMENT SITE (POTENTIAL).
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).

FT HELIX 136 138
FT TURN 141 142
FT HELIX 144 146
FT STRAND 148 151
SQ SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

Query Match 100.0%; Score 115; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNNTYRSRKYSWYVALKR 21
|||||
DB 109 SNNNTYRSRKYSWYVALKR 129

RESULT 5
FGF2_SHEEP STANDARD; PRT; 155 AA.

AC P02003;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
GN FGF2 OR FGF-2.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Caprinae; Ovis.
RN [1]
RP SEQUENCE FROM N.A.
RA Sutton R., Ward W.G., Cam G.R.;
RL Submitted (SEP-1994) to the EMBL/GenBank/DBJ databases.
RT [2]
RN [2]
RX MEDLINE; 88055377.
RA Simpson R.J., Burgess A.W.;
RA Rubila M.R., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
RT "Primary structure of ovine pituitary basic fibroblast growth factor."
RL FEBS Lett. 224:128-132(1987).

CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -!- SUBUNIT: MONOMER.
CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).

CC EMBL; L36136; AAA31519.1; -
CC PIR; S00185; S00185.
CC HSSP; P09038; 1BFF.
CC INTERPRO; IPR002209; -
CC INTERPRO; IPR002348; -
CC PFAM; PF00167; FGF; 1.
CC PRINTS; PR00262; ILIHGF.
CC PRINTS; PR00263; HBGF.
CC PROSITE; PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Vascularisation; Heparin-binding.
CC PROPEP
CC CHAIN 10 155
CC SITE 45 48 HEPARIN-BINDING GROWTH FACTOR 2.
CC SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).

FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;

Query Match 100.0%; Score 115; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNNTYRSRKYSWYVALKR 21
|||||
DB 109 SNNNTYRSRKYSWYVALKR 129

RESULT 6
FGF2_HUMAN

AC P09038; STANDARD; PRT; 155 AA.

DT 01-NOV-1988 (Rel. 09, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
GN FGF2 OR FGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
RX MEDLINE; 87053817.
RA Gospodarowicz D., Fiddes J.C.;
RT "Human basic fibroblast growth factor: nucleotide sequence and
RT genomic organization."
RL EMBO J. 5:2523-2528(1986).

CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -!- SUBUNIT: MONOMER.
CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).

CC EMBL; 87162468; -
CC PIR; S00185; S00185.
CC HSSP; P09038; 1BFF.
CC INTERPRO; IPR002209; -
CC INTERPRO; IPR002348; -
CC PFAM; PF00167; FGF; 1.
CC PRINTS; PR00262; ILIHGF.
CC PRINTS; PR00263; HBGF.
CC PROSITE; PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Vascularisation; Heparin-binding.
CC PROPEP
CC CHAIN 10 155
CC SITE 45 48 HEPARIN-BINDING GROWTH FACTOR 2.
CC SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).

CC EMBL; L36136; AAA31519.1; -
CC PIR; S00185; S00185.
CC HSSP; P09038; 1BFF.
CC INTERPRO; IPR002209; -
CC INTERPRO; IPR002348; -
CC PFAM; PF00167; FGF; 1.
CC PRINTS; PR00262; ILIHGF.
CC PRINTS; PR00263; HBGF.
CC PROSITE; PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Vascularisation; Heparin-binding.
CC PROPEP
CC CHAIN 10 155
CC SITE 45 48 HEPARIN-BINDING GROWTH FACTOR 2.
CC SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).

```

RN [7]
RP SEQUENCE OF 10-39.
RX MEDLINE: 86186784.
RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
RT "Human brain-derived acidic and basic fibroblast growth factors:
RN amino terminal sequences and specific mitogenic activities.";
RN Biochem. Biophys. Res. Commun. 135:541-548(1986).
RP [8]
RP SEQUENCE OF 2-22.
RX MEDLINE: 87136686.
RA Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.;
RT "Amino-terminal sequence of a large form of basic fibroblast growth
RN factor isolated from human benign prostatic hyperplastic tissue.";
RN Biochem. Biophys. Res. Commun. 142:702-709(1987).
RP [9]
RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
RX MEDLINE: 91195367.
RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
RT "Three-dimensional structure of human basic fibroblast growth
RN factor.";
RN Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
RP [10]
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
RX MEDLINE: 94004464.
RA Eriksson A.E., Cousens L.S., Matthews B.W.;
RT "Refinement of the structure of human basic fibroblast growth factor
RN at 1.6-A resolution and analysis of presumed heparin binding sites by
RN selenate substitution.";
RN Protein Sci. 2:1274-1284(1993).
RP [11]
RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
RX MEDLINE: 91195368.
RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
RT "Three-dimensional structure of human basic fibroblast growth factor,
RN a structural homolog of interleukin 1 beta.";
RN Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
RP [12]
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
RX MEDLINE: 92121151.
RA Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
RT "Crystal structure of basic fibroblast growth factor at 1.6-A
RN resolution.";
RN J. Biochem. 110:360-363(1991).
RP [13]
RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
RX MEDLINE: 91095983.
RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.;
RT "Three-dimensional structures of acidic and basic fibroblast growth
RN factors.";
RN Science 251:90-93(1991).
RP [14]
RP STRUCTURE BY NMR.
RX MEDLINE: 97040521.
RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;
RT "High-resolution solution structure of basic fibroblast growth factor
RN determined by multidimensional heteronuclear magnetic resonance
RN spectroscopy.";
RN Biochemistry 35:13552-13561(1996).
RP [15]
RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
RN IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
RN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
RN CONCENTRATION OF THESE 2 GROWTH FACTORS.
RP [16]
RP SUBUNIT: MONOMER.
RP [17]
RP MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
RN AFGF.
RP [18]
RP SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
RP [19]
RP THIS SWISS-PROT entry is copyright. It is produced through a collaboration
RN between the Swiss Institute of Bioinformatics and the EMBL outstation -
RN the European Bioinformatics Institute. There are no restrictions on its
RN use by non-profit institutions as long as its content is in no way
RN modified and this statement is not removed. Usage by and for commercial

```

```

CC entties requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@sib-sib.ch).
CC -----
CC EMBL: M17599; AA52534.1; ALT_INIT.
CC DR EMBL: X04431; CA28027.1; -.
CC DR EMBL: X04432; CA28028.1; -.
CC DR EMBL: X04433; CA28029.1; -.
CC DR EMBL: M27968; AA52448.1; -.
CC DR EMBL: J04513; AA52533.1; ALT_INIT.
CC DR PIR: A25824; A25824.
CC DR PIR: A26642; A26642.
CC DR PIR: B24243; B24243.
CC DR PIR: B24301; B24301.
CC DR PIR: B32878; B32878.
CC DR PIR: S00297; S00297.
CC DR PDB: 2RGE; 15-APR-92.
CC DR PDB: 4FGF; 15-JUL-93.
CC DR PDB: 1FGA; 15-JUL-93.
CC DR PDB: 1BFB; 03-APR-96.
CC DR PDB: 1BFC; 03-APR-96.
CC DR PDB: 1BFF; 16-JUN-97.
CC DR PDB: 1BFG; 31-JAN-94.
CC DR PDB: 2BFH; 30-APR-94.
CC DR PDB: 1BLA; 08-NOV-96.
CC DR PDB: 1BLD; 08-NOV-96.
CC DR MIM: 134920; -.
CC DR INTERPRO: IPR002209; -.
CC DR INTERPRO: IPR002348; -.
CC DR PFAM: PF00167; FGF; 1.
CC DR PRINTS: PR00262; ILIHGF.
CC DR PRINTS: PR00263; HBGFEGF.
CC DR PROSITE: PS00247; HBGF_FGF; 1.
CC KM Growth factor; Mitogen; Vascularization; Heparin-binding;
CC 3D-structure.
CC FT CHAIN 1 9
CC FT SITE 10 155
CC FT SITE 46 48
CC FT SITE 88 90
CC FT BINDING 27 31
CC FT BINDING 116 119
CC FT STRAND 30 34
CC FT TURN 35 38
CC FT STRAND 39 43
CC FT TURN 45 46
CC FT STRAND 49 52
CC FT TURN 55 56
CC FT TURN 58 60
CC FT HELIX 62 66
CC FT STRAND 69 70
CC FT TURN 71 76
CC FT STRAND 77 80
CC FT TURN 81 85
CC FT TURN 87 88
CC FT STRAND 91 94
CC FT HELIX 99 101
CC FT STRAND 103 107
CC FT TURN 109 110
CC FT STRAND 113 117
CC FT TURN 121 122
CC FT STRAND 124 124
CC FT STRAND 127 127
CC FT TURN 130 130
CC FT STRAND 132 133
CC FT TURN 136 138
CC FT HELIX 141 142
CC FT TURN 144 146
CC FT STRAND 148 152
CC SQ SEQUENCE 155; AA: 17254 MW: BEGCEI3373007129 CXC64;
Query Match 97.4%; Score 112; DB 1; Length 155;
Best Local Similarity 95.2%; Pred. No. 4.2e-10;
Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```

OY 1 SNNNTYRSKRYSSWYVALKR 21
Db 109 SNNNTYRSKRYSSWYVALKR 129

RESULT 7
FGF2_XENLA
ID FGF2_XENLA STANDARD; PRT; 155 AA.
AC P12226;
DT 01-OCT-1989 (Rel. 12, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF).
GN FGF2 OR FGF-2.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;
OC Xenopodinae; Xenopus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 89058621.
RA Krimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;
RT "The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer."
RT Science 242:1053-1056(1988).
RL [2]
RP SEQUENCE OF 95-155 FROM N.A.
RX MEDLINE; 88052890.
RA Krimelman D., Kirschner M.;
RT "Synergistic induction of mesoderm by FGF and TGF-beta and the RT identification of an mRNA coding for FGF in the early xenopus embryo."
RL Cell 51:869-877(1987).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL; M18067; AAA49726.1; -
CC PIR; A29618; A29618.
CC PIR; A40117; A40117.
CC HSSP; P09038; 1BFF.
CC INTERPRO; IPR002209; -
CC INTERPRO; IPR002348; -
CC PFAM; PF00167; FGF_1.
CC PRINTS; PR00262; ILHBGF.
CC PRINTS; PR00263; HBGFEGF.
CC PROSITE; PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
FT CONFLICT 111 111 MISSING (IN REF. 2).
SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;

Query Match 97.4%; Score 112; DB 1; Length 155;
Best Local Similarity 95.2%; Pred. No. 4.2e-10;
Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps -0;

OY 1 SNNNTYRSKRYSSWYVALKR 21
Db 109 ANNNTYRSKRYSSWYVALKR 129

RESULT 8
FGF2_MONDO
ID FGF2_MONDO STANDARD; PRT; 156 AA.
AC P48798;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF) (PROSTATROPIN).
GN FGF2.
OS Monodelphis domestica (short-tailed grey opossum).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-EYE.
RX MEDLINE; 94296558.
RA Kusewitt D.F., Saborin C.L.K., Sherburn T.E., Ley R.D.;
RT "Characterization of cDNA encoding basic fibroblast growth factor of the marsupial Monodelphis domestica."
RT DNA Cell Biol. 13:549-554(1994).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -----
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL; Z15154; CA478854.1; ALT_INT.
CC HSSP; P09038; 1BFF.
CC INTERPRO; IPR002209; -
CC INTERPRO; IPR002348; -
CC PFAM; PF00167; FGF_1.
CC PRINTS; PR00262; ILHBGF.
CC PRINTS; PR00263; HBGFEGF.
CC PROSITE; PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 28 32 HEPARIN (POTENTIAL).
FT BINDING 117 120 HEPARIN (POTENTIAL).
SQ SEQUENCE 156 AA; 17303 MW; 7E655FCC49BF1209 CRC64;

Query Match 97.4%; Score 112; DB 1; Length 156;
Best Local Similarity 95.2%; Pred. No. 4.2e-10;
Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 SNNNTYRSKRYSSWYVALKR 21
Db 110 SNNNTYRSKRYSSWYVALKR 130

RESULT 9
FGF2_CHICK
ID FGF2_CHICK STANDARD; PRT; 158 AA.
AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 2 PRECURSOR (HBGF-2) (BASIC FIBROBLAST GROWTH FACTOR) (BFGF).
GN FGF2 OR FGF-2.

OS Gallus gallus (Chicken).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 CC Gallus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 93246053.
 RA Borja A.Z., Zeller R., Meijers C.;
 RT "Expression of alternatively spliced bregf first coding exons and
 RT antisense mRNAs during chicken embryogenesis.";
 RL Dev. Biol. 157:110-118(1993).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 CC AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: M95707; AAA48617.1; -
 DR HSSP: P09038; 1BFF.
 DR INTERPRO: IPR002209; -
 DR INTERPRO: IPR002348; -
 DR PRAM: PF00167; FGF; 1.
 DR PRINTS: PR00262; ILIHGFG.
 DR PRINTS: PR00263; HBGFGFG.
 DR PROSITE: PS00247; HBGFGFG; 1.
 KM Growth factor; Mitogen; Vascularization; Heparin-binding.
 FT PROPEP 1 12 BY SIMILARITY
 FT CHAIN 13 158 HEPARIN-BINDING GROWTH FACTOR 2.
 FT BINDING 30 34 HEPARIN (POTENTIAL).
 FT BINDING 119 122 HEPARIN (POTENTIAL).
 SQ SEQUENCE 158 AA; 17374 MW; 7869B684C17F1816 CRC64;
 OY 1 SNNNTYRSKRYSSWYVALKR 21
 DB 112 SNNNTYRSKRYSSWYVALKR 132
 RESULT 10
 FGFA_XENLA STANDARD: PRT: 187 AA.
 AC P48805;
 DT 01-FEB-1996 (Rel. 33, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-FEB-1996 (Rel. 33, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR-4-I PRECURSOR (FGF-4-I) (HBGF-4-I) (EMBRONIC
 DE FIBROBLAST GROWTH-FACTOR I) (XERGF-I).
 OS Xenopus laevis (African clawed frog).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;
 CC Xenopodinae; Xenopus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 92315916.
 RA Isaacs H.V., Tannahill D., Slack J.M.W.;
 RT "Expression of a novel FGF in the Xenopus embryo. A new candidate
 RT inducing factor for mesoderm formation and anteroposterior
 RT specification.";
 CC -----

RL Development 114:711-720(1992).
 CC -1- FUNCTION: GOOD CANDIDATE FOR AN INDUCING FACTOR WITH POSSIBLE
 CC ROLES BOTH IN MESODERM INDUCTION AT THE BLASTULA STAGE AND IN THE
 CC FORMATION OF THE ANTEROPOSTERIOR AXIS AT THE GASTRULA STAGE.
 CC -1- SUBCELLULAR LOCATION: SECRETED (PROBABLE).
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: X62593; CAA44479.1; -
 DR HSSP: P09038; 2BFH.
 DR INTERPRO: IPR002209; -
 DR INTERPRO: IPR002348; -
 DR PRAM: PF00167; FGF; 1.
 DR PRINTS: PR00262; ILIHGFG.
 DR PRINTS: PR00263; HBGFGFG.
 DR PROSITE: PS00247; HBGFGFG; 1.
 KM Growth factor; Mitogen; Signal.
 FT SIGNAL 1 187 POTENTIAL.
 FT CHAIN 1 187 FIBROBLAST GROWTH FACTOR-4-I.
 SQ SEQUENCE 187 AA; 21223 MW; AAE63D5E82ADBD CRC64;
 OY 2 NNNYTSRKYSWYVAL 19
 DB 145 NNNYTSRKYSWYVAL 162
 RESULT 11
 FGFB_XENLA STANDARD: PRT: 192 AA.
 ID FGFB_XENLA PRT: 192 AA.
 AC P48806;
 DT 01-FEB-1996 (Rel. 33, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-FEB-1996 (Rel. 33, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR-4-II PRECURSOR (FGF-4-II) (HBGF-4-II)
 DE (EMBRONIC FIBROBLAST GROWTH FACTOR II) (XERGF-II).
 OS Xenopus laevis (African clawed frog).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;
 CC Xenopodinae; Xenopus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 92315916.
 RA Isaacs H.V., Tannahill D., Slack J.M.W.;
 RT "Expression of a novel FGF in the Xenopus embryo. A new candidate
 RT inducing factor for mesoderm formation and anteroposterior
 RT specification.";
 RL Development 114:711-720(1992).
 CC -1- FUNCTION: GOOD CANDIDATE FOR AN INDUCING FACTOR WITH POSSIBLE
 CC ROLES BOTH IN MESODERM INDUCTION AT THE BLASTULA STAGE AND IN THE
 CC FORMATION OF THE ANTEROPOSTERIOR AXIS AT THE GASTRULA STAGE.
 CC -1- SUBCELLULAR LOCATION: SECRETED (PROBABLE).
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----

DR EMBL; X62594; CAA44480.1; -
DR HSSP; P09038; 1BFF.
DR INTERPRO; IPRO02209; -
DR INTERPRO; IPRO02348; -
DR PRAM; PF00167; FGF; 1.
DR PRINTS; PR00262; ILHBGF.
DR PRINTS; PR00263; HBGF_FGF.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Signal.
FT CHAIN 1
FT SIGNAL 1
FT SEQUENCE 192 AA; 21903 MW; 2B01B0B8824E3B3 CRC64;
SQ

Query Match
Best Local Similarity 66.7%; Pred. NO. 0.0014;
Matches 12; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

QY 2 NNYNTRSKRYSSWYVAL 19
Db 150 NNYNTRSKRYSSWYVAL 167

RESULT 12
FGFL_PIG STANDARD; PRT; 152 AA.
AC P20002;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF) (ALPHA-ENDOTHELIAL CELL GROWTH FACTOR) (FRAGMENT).
DE FGFL OR FGF-1.
OS Sus scrofa (pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RX MEDLINE; 92062117.
RA Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
RT "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (afgf) from porcine heart."
RL Biochem. Biophys. Res. Commun. 180:853-859(1991).
RP SEQUENCE OF 22-41.
RX MEDLINE; 89231704.
RA Ounkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
RT Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts."
RL Eur. J. Biochem. 181:67-73(1989).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
CC
DR EMBL; X60317; CAA42869.1; -
DR PIR; S03954; S03954.
DR HSSP; P05230; 2AXM.

DR INTERPRO; IPRO02209; -
DR PRAM; PF00167; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1
FT CHAIN 16
FT BINDING 22
FT BINDING 24
FT BINDING 113
FT BINDING 31
FT CONFLICT 39
FT NON_TER 152
FT SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;
SQ

Query Match
Best Local Similarity 55.7%; Score 64; DB 1; Length 152;
Matches 11; Conservative 7; Mismatches 2; Indels 2; Gaps 1;

QY 2 NNYNTRSKRYSSWYVAL 21
Db 107 NNYNTRSKRYSSWYVAL 128

RESULT 13
FGFL_MESAU STANDARD; PRT; 155 AA.
AC P34004;
DT 01-FEB-1994 (Rel. 28, Created)
DT 01-FEB-1994 (Rel. 28, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE HEPARIN-BINDING GROWTH FACTOR 1 PRECURSOR (HBGF-1) (ACIDIC FIBROBLAST GROWTH FACTOR) (AFGF).
DE FGFL OR FGF-1.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae; Mesocricetus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 90270291.
RA Hall J.A., Harris M.A., Mansson P.E., Zhou H., Harris S.E.;
RT "Characterization of the hamster DDT-1 cell afgf/HBGF-1 gene and cDNA and its modulation by steroids."
RL J. Cell. Biochem. 43:17-26(1990).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC PIR; A60721; A60721.
DR HSSP; P05230; 2AXM.
DR INTERPRO; IPRO02209; -
DR INTERPRO; IPRO02348; -
DR PRAM; PF00167; FGF; 1.
DR PRINTS; PR00262; ILHBGF.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding.
FT PROPEP 1
FT CHAIN 16
FT BINDING 24
FT BINDING 113
FT BINDING 115
FT SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;
SQ

Query Match
Best Local Similarity 55.7%; Score 64; DB 1; Length 155;
Matches 11; Conservative 7; Mismatches 2; Indels 2; Gaps 1;

Query Match 54.88; Score 63; DB 1; Length 194;
 Best Local Similarity 55.08; Pred. No. 0.01;
 Matches 11; Conservative 2; Mismatches 7; Indels 0; Gaps 0;
 QY 2 NNYNTYRSRKYSWYVALKR 21
 |||||
 Db 152 NNYNAYESRITPGMYIALSK 171

Search completed: November 9, 2000, 15:40:14
 Job time: 567 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:39:30 ; Search time 106.63 seconds
(without alignments)
18.389 Million cell updates/sec

Title: US-09-266-543-2
Perfect score: 115
Sequence: 1 SNNYNTYRSRKYSSWYVALKR 21

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues

Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

SPREMBL_14:*
1: sp_archaea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_podent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	115	100.0	130	6	077767
2	115	100.0	170	11	060487
3	112	97.4	196	4	P78443
4	111	96.5	101	13	P79706
5	111	96.5	146	13	P07659
6	60	52.2	196	13	Q9YH31
7	58	50.4	86	13	P79685
8	58	50.4	204	13	Q90696
9	58	50.4	244	4	Q14915
10	57	49.6	182	13	Q9P778
11	56	48.7	206	13	Q9YED8
12	56	48.7	210	13	Q42278
13	56	48.7	210	13	Q57341
14	52.5	45.7	525	2	083145
15	52	45.2	200	13	P79925
16	51.5	44.8	1000	3	074719
17	51	44.3	276	13	057398
18	51	44.3	276	13	09PW18
19	50.5	43.9	296	12	092268

20	50.5	43.9	300	12	Q9W1D2	Q9W1D2 cowpea aph1
21	50.5	43.9	308	12	Q9YUW1	Q9YUW1 cowpea aph1
22	50	43.5	82	6	062682	062682 canis fam1
23	50	43.5	148	5	017391	017391 caenorhabd1
24	49.5	43.0	257	12	Q90189	Q90189 onion yello
25	49	42.6	111	2	Q921K8	Q921K8 helicobacte
26	49	42.6	192	12	Q91139	Q91139 human immun
27	49	42.6	192	12	Q91169	Q91169 human immun
28	49	42.6	192	12	Q91173	Q91173 human immun
29	49	42.6	192	12	Q91176	Q91176 human immun
30	49	42.6	192	12	Q91179	Q91179 human immun
31	49	42.6	873	12	Q89274	Q89274 gallid herp
32	49	42.6	966	12	Q9QTB5	Q9QTB5 gallid herp
33	48	41.7	425	5	076831	076831 caenorhabd1
34	47.5	41.3	244	12	Q98411	Q98411 unclassified
35	47.5	41.3	255	12	Q41011	Q41011 onion yello
36	47.5	41.3	332	12	Q55504	Q55504 onion yello
37	47.5	41.3	332	12	Q55511	Q55511 onion yello
38	47.5	41.3	332	12	Q55513	Q55513 onion yello
39	47	40.9	152	2	Q50300	Q50300 borrelia bu
40	47	40.9	195	2	Q51193	Q51193 borrelia bu
41	46.5	40.4	182	12	Q92401	Q92401 bombyx mori
42	46	40.0	621	5	Q9YIV9	Q9YIV9 halocynthia
43	46	40.0	844	2	Q87242	Q87242 lactococcus
44	45	39.1	73	6	Q97573	Q97573 sus scrofa
45	45	39.1	192	12	Q77374	Q77374 human immun

ALIGNMENTS

RESULT	ID	PRELIMINARY	PRT	130 AA.
077767	077767			
AC	077767			
DT	01-NOV-1998 (TREMURel. 08, Created)			
DT	01-NOV-1998 (TREMURel. 08, Last sequence update)			
DT	01-MAY-2000 (TREMURel. 13, Last annotation update)			
DE	BASIC FIBROBLAST GROWTH FACTOR (BFGF) (FGF-2) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENT).			
DE	GN BFGF.			
OS	Canis familiaris (Dog).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE-ADRENAL GLAND;			
RA	Trochta O.A., Jacobs R.M., Lamarre J.;			
RT	"The role bFGF in canine Hemangiosarcoma."			
RT	Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.			
CC	-1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).			
CC	-1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARIN SULFATE (BY SIMILARITY).			
CC	-1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.			
DR	EMBL: AF060562; AAC35912.1; ..			
DR	HSSP: P09038; 1BFF.			
DR	INTERPRO: IPR002209; ..			
DR	PFAM: PF00167; FGF; 1.			
DR	PROSITE: PS00247; HBGF_FGF; 1.			
KW	Growth factor; Mitogen; Vascularization; Heparin-binding; Phosphorylation; Developmental protein.			
FT	NON_TER			
FT	1			
FT	21			
FT	63			
FT	10			
FT	BINDING			
FT	10			
FT	CELL ATTACHMENT SITE (POTENTIAL).			
FT	CELL ATTACHMENT SITE (POTENTIAL).			
FT	HEPARIN (BY SIMILARITY).			

FT BINDING 65 65 HEPARIN (BY SIMILARITY).
 FT BINDING 103 119 HEPARIN (BY SIMILARITY).
 FT MOD_RES 48 48 PHOSPHORYLATION (BY SIMILARITY).
 FT MOD_RES 96 96 PHOSPHORYLATION (BY SIMILARITY).
 FT NON_TER 130 130
 SQ SEQUENCE 130 AA; 14902 MW; 21900876E878FAEA CRC64;

Query Match 100.0%; Score 115; DB 6; Length 130;
 Best Local Similarity 100.0%; Pred. NO. 3.3e-10;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 SNNNTYRSKRKSSWYVALKR 21
 |||||
 Db 84 SNNNTYRSKRKSSWYVALKR 104

RESULT 2
 ID 060487 PRELIMINARY; PRT; 170 AA.
 AC 060487;
 DT 01-NOV-1996 (TREMblrel. 01, Created)
 DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR 2 (FGF-2) (FIBROBLAST GROWTH FACTOR, BASIC)
 DE (BFGF) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN)
 DE (PROSTATIC GROWTH FACTOR) (FRAGMENTS).
 OS FGF2.
 OS Cavia porcellus (Guinea pig).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
 RN [1]
 RP SEQUENCE OF 53-170 FROM N.A.
 RC TISSUE-PROSTATE;
 RA Ricciardelli C.;
 RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.
 RX MEDLINE; 89273588.
 RA Sommer A., Moscatelli D., Rifkin D.B.;
 RT "An amino-terminally extended and post-translationally modified form
 of a 25kd basic fibroblast growth factor.";
 RL Biochem. Biophys. Res. Commun. 160:1267-1274(1989).
 RN [3]
 RP PARTIAL SEQUENCE, AND METHYLATION.
 RX MEDLINE; 91322114.
 RA Burgess W.H., Bizik J., Mehlman T., Quarto N., Rifkin D.B.;
 RT "Direct evidence for methylation of arginine residues in high
 molecular weight forms of basic fibroblast growth factor.";
 RL Cell Regul. 2:87-93(1991).
 RN [4]
 RP CHARACTERIZATION.
 RC TISSUE-BRAIN;
 RX MEDLINE; 87289686.
 RA Moscatelli D., Joseph-Silverstein J., Manejias R., Rifkin D.B.;
 RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high
 molecular weight form of basic fibroblast growth factor.";
 RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).
 CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC
 FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC
 PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND
 HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR
 MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,
 PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS
 SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO
 ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
 CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGF1 AND AT LEAST
 ONE HEPARAN SULFATE (BY SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS: 18 KDA AND 25 KDA
 (SHOWN HERE). MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION
 INITIATION SITES. BOTH FORMS ARE ACTIVE.
 CC -1- PM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE
 CC INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE
 CC SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF
 CC PARTIAL AMINO-ACID SEQUENCING.

EMBL; U75974; AAA85394.1; ALT_FRAME.
 DR HSSP; P09038; ZBRF.
 DR INTERPRO; IPR002209; -
 DR INTERPRO; IPR002348; -
 DR PFAM; PF00167; FGF_1.
 DR PRINTS; PR00262; I11HGF.
 DR PRINTS; PR00263; HBGF2F.
 DR PROSITE; PS00247; HBGF_FGF_1.
 KW Growth factor; Mitogen; Vascularization; Heparin-binding;
 KW Alternative initiation; Methylation; Phosphorylation;
 KW Developmental protein.

FT NON_TER 1 1
 FT NON_CONS 15 16
 FT CHAIN <1 170
 FT INIT_MET 22 22
 FT INIT_MET 22 22
 FT DOMAIN 11 14
 FT NON_CONS 50 51
 FT SITE 61 63
 FT SITE 103 103
 FT BINDING 50 51
 FT BINDING 105 105
 FT BINDING 143 159
 FT MOD_RES 4 4
 FT MOD_RES 6 6
 FT MOD_RES 8 8
 FT MOD_RES 88 88
 FT MOD_RES 136 136
 SQ SEQUENCE 170 AA; 18354 MW; F36BDBC736E5FE8E CRC64;
 Query Match 100.0%; Score 115; DB 11; Length 170;
 Best Local Similarity 100.0%; Pred. NO. 4.4e-10;
 Matches 21; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 SNNNTYRSKRKSSWYVALKR 21
 |||||
 Db 124 SNNNTYRSKRKSSWYVALKR 144

RESULT 3
 ID P78443 PRELIMINARY; PRT; 196 AA.
 AC P78443;
 DT 01-MAY-1997 (TREMblrel. 03, Created)
 DT 01-MAY-1997 (TREMblrel. 03, Last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
 DE 21 KDA BASIC FIBROBLAST GROWTH FACTOR (BFGF).
 GN FGF2.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 89184522.
 RA Prats H., Kagehad M., Prats A.C., Klagsbrun M., Lelias J.M.,
 RA Llaunzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A., Caput D.;
 RT "High molecular mass forms of basic fibroblast growth factor are
 initiated by alternative CUG codons.";
 RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).
 RN [2]
 RP SEQUENCE OF 81-168 FROM N.A.
 RX MEDLINE; 93038590.
 RA Watson R., Anthony F., Pickett M., Lambden P., Masson G.M.,
 RA Thomas E.J.;
 RT "Reverse transcription with nested polymerase chain reaction shows
 expression of basic fibroblast growth factor transcripts in human
 granulosa and cumulus cells from in vitro fertilisation patients.";
 RL Biochem. Biophys. Res. Commun. 187:1227-1231(1992).

DR EMBL: J04513; AAA52532.1; -;
 DR EMBL: S47380; AAD13853.1; -;
 DR HSSP: P09038; 1BFF.
 DR INTERPRO: IPRO02209; -;
 DR INTERPRO: IPRO02348; -;
 DR PFM: PF00167; FGF; 1.
 DR PRINTS: PR00262; ILIHGF.
 DR PRINTS: PR00263; HBGFEGF.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 DR PRODOM: PD000831; -; 1
 SQ SEQUENCE 196 AA; 21203 MM; D6B5447137E60343 CRC64;

Query Match 97.4%; Score 112; DB 4; Length 196;
 Best Local Similarity 95.2%; Pred. No. 1.4e-09;
 Matches 20; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 SNNYTYRSRKYSSWYVALKR 21
 |||||
 Db 150 SNNYTYRSRKYSSWYVALKR 170

RESULT 4
 P79706 PRELIMINARY; PRT; 101 AA.
 AC P79706;
 DT 01-MAY-1997 (TREMblrel. 03, Created)
 DT 01-MAY-1997 (TREMblrel. 03, Last sequence update)
 DT 01-MAY-2000 (TREMblrel. 13, Last annotation update)
 DE BASIC FGF (FRAGMENT).
 OS Cynops pyrrhogaster (Japanese common newt).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-EMBRIO;
 RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,
 RA Kaneda T.;
 RT "Serial expression of the genes in a mesodermilizing ectoderms of
 RT early Cynops gastrula.";
 RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.
 DR EMBL: D89443; BAAL3958.1; -;
 DR HSSP: P09038; 2BEM.
 DR INTERPRO: IPRO02209; -;
 DR PFM: PF00167; FGF; 1.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 DR NON_TER 1
 FT NON_TER 101
 SQ SEQUENCE 101 AA; 11906 MM; 74A16C866C1F457A CRC64;

Query Match 96.5%; Score 111; DB 13; Length 101;
 Best Local Similarity 95.2%; Pred. No. 1e-09;
 Matches 20; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 SNNYTYRSRKYSSWYVALKR 21
 |||||
 Db 81 SNNYTYRSRKYSSWYVALKR 101

RESULT 5
 007659 PRELIMINARY; PRT; 146 AA.
 AC 007659;
 DT 01-NOV-1996 (TREMblrel. 01, Created)
 DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR.
 GN BFGF.
 OS Gallus gallus (chicken).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
 OC Gallus.

RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 93246053.
 RA Borja A.2., Zeller R., Meijers C.;
 RT "Expression of alternatively spliced bFGF first coding exons and
 RT antisense mRNAs during chicken embryogenesis.";
 RL Dev. Biol. 157:110-118(1993).
 RN [2]
 RP SEQUENCE OF 52-85 FROM N.A.
 RX MEDLINE: 90382254.
 RA Mitran E., Gruendbaum Y., Shohat H., Ziv T.;
 RT "Fibroblast growth factor during mesoderm induction in the early chick
 RT embryo.";
 RL Development 109:387-393(1990).
 DR EMBL: M95706; AAA48616.1; -;
 DR EMBL: X56804; CAA40139.1; -;
 DR HSSP: P09038; 2BFF.
 DR INTERPRO: IPRO02209; -;
 DR INTERPRO: IPRO02348; -;
 DR PFM: PF00167; FGF; 1.
 DR PRINTS: PR00262; ILIHGF.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 DR PRODOM: PD000831; -; 1
 SQ SEQUENCE 146 AA; 16182 MM; A7CB97BCB456E247 CRC64;

Query Match 96.5%; Score 111; DB 13; Length 146;
 Best Local Similarity 95.2%; Pred. No. 1.5e-09;
 Matches 20; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 SNNYTYRSRKYSSWYVALKR 21
 |||||
 Db 100 SNNYTYRSRKYSSWYVALKR 120

RESULT 6
 09YH31 PRELIMINARY; PRT; 196 AA.
 AC 09YH31;
 DT 01-MAY-1999 (TREMblrel. 10, Created)
 DT 01-MAY-1999 (TREMblrel. 10, Last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
 DE PUTATIVE FIBROBLAST GROWTH FACTOR-4.
 OS Notophthalmus viridescens (Eastern newt) (Triturus viridescens).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae;
 OC Notophthalmus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Wei Y.;
 RT "Putative Newt Fibroblast Growth Factor-4.";
 RL Submitted (OCT-1996) to the EMBL/GenBank/DBJ databases.
 DR EMBL: U76998; AAC9812.1; -;
 DR HSSP: P09038; 1BFF.
 DR INTERPRO: IPRO01064; -;
 DR INTERPRO: IPRO02209; -;
 DR INTERPRO: IPRO02348; -;
 DR PFM: PF00167; FGF; 1.
 DR PRINTS: PR00262; ILIHGF.
 DR PRINTS: PR00263; HBGFEGF.
 DR PROSITE: PS00225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.
 DR PROSITE: PS00247; HBGF_FGF; 1.
 DR PRODOM: PD000831; -; 1
 SQ SEQUENCE 196 AA; 22033 MM; AC4688CD989C6EAF CRC64;

Query Match 52.2%; Score 60; DB 13; Length 196;
 Best Local Similarity 50.0%; Pred. No. 0.098;
 Matches 10; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

QY 2 SNNYTYRSRKYSSWYVALKR 21
 |||||
 Db 154 SNNYTYRSRKYSSWYVALKR 173

RESULT 7
ID P79685 PRELIMINARY: PRT: 86 AA.
AC P79685;
DT 01-MAY-1997 (TREMblrel. 03, Created)
DT 01-MAY-1997 (TREMblrel. 03, Last sequence update)
DT 01-MAY-2000 (TREMblrel. 13, Last annotation update)
DE FIBROBLAST GROWTH FACTOR 8 (FRAGMENT).
GN FGF8.
OS Ambystoma mexicanum (Xenopus).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroides; Ambystomatidae;
RN Ambystoma.
RN [1]
RP SEQUENCE FROM N.A.
RA Han M.J., Kim W.S.;
RL Submitted (FEB-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL; Y11093; CA71967.1; -.
DR HSSP; P09038; 1BRC.
DR INTERPRO; IPR002209; -.
DR PFAM; PF00167; FGF; 1.
FT NON TER
SO SEQUENCE 86 AA; 10522 MW; 09B38BD5E2A95C1F CRC64;

Query Match 50.4%; Score 58; DB 13; Length 86;
Best Local Similarity 45.0%; Pred. No. 0.085;
Matches 9; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 NNYNTYRSKYSWYVALKR 21
DB 11 NNYTALQNAKYEWMYAFTR 30

RESULT 8
ID Q90696 PRELIMINARY: PRT: 204 AA.
AC Q90696;
DT 01-NOV-1996 (TREMblrel. 01, Created)
DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
DT 01-MAY-2000 (TREMblrel. 13, Last annotation update)
DE FIBROBLAST GROWTH FACTOR 8 FGF8 (FRAGMENT).
OS Gallus gallus (Chicken).
CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
CC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-BRAIN.
RX MEDLINE; 96140646.
RA Crossley P.R., Minowada G., MacArthur C.A., Martin G.R.;
RT "Roles for FGF8 in the induction, initiation, and maintenance of chick limb development."
RT Cell 84:127-136(1996).
DT 01-MAY-2000 (TREMblrel. 14, Last annotation update)
DE EMBL; U41467; AAA93298.1; -.
DR HSSP; P09038; 1FGA.
DR INTERPRO; IPR002209; -.
DR PFAM; PF00167; FGF; 1.
DR PROSITE; PS00247; HBG_FGF; 1.
FT NON TER
SO SEQUENCE 204 AA; 23730 MW; 5CAG63F72E23D979 CRC64;

Query Match 50.4%; Score 58; DB 13; Length 204;
Best Local Similarity 45.0%; Pred. No. 0.21;
Matches 9; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 NNYNTYRSKYSWYVALKR 21
DB 126 NNYTALQNAKYEWMYAFTR 145

RESULT 9
ID Q14915 PRELIMINARY: PRT: 244 AA.
AC Q14915; Q15766;
DT 01-NOV-1996 (TREMblrel. 01, Created)
DT 01-NOV-1996 (TREMblrel. 01, Last sequence update)
DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
DE FIBROBLAST GROWTH FACTOR 8.
GN FGF8 OR FGF8F OR FGF-8.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-PLACENTA;
RX MEDLINE; 96299767.
RA Genel J., Gorry M., Ehrlich G.D., MacArthur C.A.;
RT "Structure and sequence of human FGF8."
RL Genomics 35:253-257(1996).
RN [2]
RP SEQUENCE FROM N.A.
RA Tanaka S.;
RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
RN [3]
RP SEQUENCE OF 1-11 FROM N.A.
RA Payson R.A., Wu J., Liu Y., Chiu I.M.;
RL Oncogene 0:0-0(0).
DR EMBL; U47011; AAC50782.1; -.
DR EMBL; U47009; AAC50782.1; JOINED.
DR EMBL; U47010; AAC50782.1; JOINED.
DR EMBL; AB014615; BAA28605.1; -.
DR EMBL; U56878; AB03787.1; -.
DR HSSP; P09038; 2BPH.
DR INTERPRO; IPR002209; -.
DR PFAM; PF00167; FGF; 1.
DR PROSITE; PS00247; HBG_FGF; 1.
DR PRODOM; PD000831; -; 1
SO SEQUENCE 244 AA; 27715 MW; 73DA5874CA918E6A CRC64;

Query Match 50.4%; Score 58; DB 4; Length 244;
Best Local Similarity 45.0%; Pred. No. 0.25;
Matches 9; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 NNYNTYRSKYSWYVALKR 21
DB 165 NNYTALQNAKYEWMYAFTR 184

RESULT 10
ID Q9PT78 PRELIMINARY: PRT: 182 AA.
AC Q9PT78;
DT 01-MAY-2000 (TREMblrel. 13, Created)
DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)
DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
DE FGF8 (FRAGMENT).
OS Oryzias latipes (Medaka fish).
CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
CC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Acanthopterygii;
CC Atherinomorpha; Cyprinodontiformes; Adiantichthyidae;
CC Adiantichthyidae; Oryziinae; Oryzias.
RN [1]
RP SEQUENCE FROM N.A.
RA Carl M., Witbrodt J.;
RT "Graded interference with FGF-signalling uncovers its dorso-ventral asymmetry at the mid-hindbrain boundary."
RT Submitted (JUN-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AJ243210; CAB64349.1; -.
DR INTERPRO; IPR002209; -.
DR PROSITE; PS002348; -.
DR PFAM; PF00167; FGF; 1.

DR PRINTS; PRO0262; ILIHGF.
 FT NON_TER 1 1
 FT NON_TER 182 182
 SQ SEQUENCE 182 AA; 20702 MW; 1EF8247382A48DOC CRC64;

Query Match 49.6%; Score 57; DB 13; Length 182;
 Best Local Similarity 45.0%; Pred. No. 0.26;
 Matches 9; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 NNYNYSRKYSWYVALKR 21
 ||| : : ||| :
 Db 103 NNYTALRNHAYNDWYMAFTR 122

RESULT 11
 QY9YGD8 PRELIMINARY; PRT; 206 AA.

AC Q9YGD8;
 DT 01-MAY-1999 (TREMBlrel. 10, Created)
 DT 01-MAY-1999 (TREMBlrel. 10, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR 6-RELATED PROTEIN.
 GN FGF6.
 OS Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
 OC Proteoanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 99096461.
 RA Rescan P. Y.;
 RT "Identification of a fibroblast growth factor 6 (FGF6) gene in a non-mammalian vertebrate: continuous expression of FGF6 accompanies muscle fiber hyperplasia."
 RT Blotchim. Biophys. Acta 1443:305-314(1998).
 RL EMBL; Y16850; CA76422.1; -.
 DR HSSP; P09038; 1BFF.
 DR INTERPRO; IPR001064; -.
 DR INTERPRO; IPR002209; -.
 DR INTERPRO; IPR002348; -.
 DR PFAM; PF00167; FGF; 1.
 DR PRINTS; PRO0262; ILIHGF.
 DR PRINTS; PRO0263; HBGFGF.
 DR PROSITE; PS00225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.
 DR PROSITE; PS00247; HBGF_FGF; 1.
 DR PRODOM; PD000831; -; 1.
 SQ SEQUENCE 206 AA; 23375 MW; BB883328F17EB6E4 CRC64;

Query Match 48.7%; Score 56; DB 13; Length 206;
 Best Local Similarity 50.0%; Pred. No. 0.41;
 Matches 10; Conservative 2; Mismatches 8; Indels 0; Gaps 0;

OY 2 NNYNYSRKYSWYVALKR 21
 ||| : : ||| :
 Db 164 NNYNAYESSYIRGSTALNKR 183

RESULT 12
 O42278 PRELIMINARY; PRT; 210 AA.

AC O42278;
 DT 01-JAN-1998 (TREMBlrel. 05, Created)
 DT 01-JAN-1998 (TREMBlrel. 05, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR 8.
 GN FGF8.
 OS Brachydanio rerio (zebrafish) (Zebra danio).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi;
 OC Cypriniformes; Cyprinidae; Cyprinidae; Rasbora; Danio.
 RN [1]

RP SEQUENCE FROM N.A.
 RA Sleptsova-Friedrich I.L., Poon K.L., Clark M., Lebrach H., Korch V.P.;
 RL Submitted (OCT-1997) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF030560; AAB82614.1; -.
 DR HSSP; P09038; 1BLD.
 DR INTERPRO; IPR002209; -.
 DR PFAM; PF00167; FGF; 1.
 DR PROSITE; PS00247; HBGF_FGF; UNKNOWN_1.
 DR PRODOM; PD000831; -; 1.
 SQ SEQUENCE 210 AA; 24672 MW; EE8665316B7B97E CRC64;

Query Match 48.7%; Score 56; DB 13; Length 210;
 Best Local Similarity 45.0%; Pred. No. 0.42;
 Matches 9; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 NNYNYSRKYSWYVALKR 21
 ||| : : ||| :
 Db 136 NNYTALQNVKTEGWYMAFTR 155

RESULT 13
 O57341 PRELIMINARY; PRT; 210 AA.

AC O57341;
 DT 01-JUN-1998 (TREMBlrel. 06, Created)
 DT 01-JUN-1998 (TREMBlrel. 06, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE FIBROBLAST GROWTH FACTOR 8.
 GN FGF-8 OR FGF8.
 OS Brachydanio rerio (zebrafish) (Zebra danio).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
 OC Cypriniformes; Cyprinidae; Cyprinidae; Rasbora; Danio.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 98043861.
 RA Fuertbauer M., Thisse C., Thisse B.;
 RT "A role for FGF-8 in the dorsoventral patterning of the zebrafish gastrula."
 RT Development 124:4253-4264(1997).
 RL [2]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 98274197.
 RA Reliefs F., Boehli H., Walsh E.C., Crossley P.H., Stanier D.Y.R.,
 RT Brand M.;
 RT "Fgf8 is mutated in zebrafish acerebellar (ace) mutants and is required for maintenance of midbrain-hindbrain boundary development and somitogenesis."
 RT Development 125:2381-2395(1998).
 RL EMBL; AF034264; AAC60303.1; -.
 DR EMBL; AF031365; AAC41302.1; -.
 DR HSSP; P09038; 1BLD.
 DR ZFIN; ZDB-GENE-990415-72; fgf8.
 DR INTERPRO; IPR002209; -.
 DR PFAM; PF00167; FGF; 1.
 DR PROSITE; PS00247; HBGF_FGF; UNKNOWN_1.
 DR PRODOM; PD000831; -; 1.
 SQ SEQUENCE 210 AA; 24697 MW; 9D9CA5B8E18A435A CRC64;

Query Match 48.7%; Score 56; DB 13; Length 210;
 Best Local Similarity 45.0%; Pred. No. 0.42;
 Matches 9; Conservative 3; Mismatches 8; Indels 0; Gaps 0;

QY 2 NNYNYSRKYSWYVALKR 21
 ||| : : ||| :
 Db 136 NNYTALQNVKTEGWYMAFTR 155

RESULT 14
 O83145 PRELIMINARY; PRT; 525 AA.

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:31:53 ; Search time 72.39 Seconds

(without alignments)
11.396 Million cell updates/sec

Title: US-09-266-543-3

Perfect score: 78

Sequence: 1 CRTKPEKCDKPRR 13

Scoring table: BLOSUM62
Gapop 10.0, Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

Database :
1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	51.5	66.0	120	2 A33787	vascular endothel
2	51.5	66.0	146	2 S57956	ovine vascular end
3	41	52.6	139	2 T09850	albumin 2S storage
4	41	52.6	139	2 T09878	albumin 2S storage
5	41	52.6	825	2 A26983	regulatory protein
6	41	52.6	1080	2 A71485	probable pbp2-tran
7	40	51.3	216	2 T12727	hypothetical prote
8	40	51.3	297	1 BVECT	bacteriophage T4 1
9	40	51.3	350	1 TVEFDS	protein-tyrosine k
10	40	51.3	636	2 I48689	gene NK10 protein
11	40	51.3	2326	2 B47447	calcium channel pr
12	40	51.3	2907	2 A57278	fibrillin-2 precur
13	40	51.3	2918	2 A54105	fibrillin-2 precur
14	39	50.0	190	2 A52130	vascular endotheli
15	39	50.0	190	2 B40080	vascular endotheli
16	39	50.0	190	2 B44881	vascular endotheli
17	39	50.0	190	2 A35987	glioma-derived vas
18	39	50.0	214	2 A44881	vascular endotheli
19	39	50.0	232	2 A41551	vascular endotheli
20	39	50.0	442	2 T01731	hypothetical prote
21	39	50.0	559	2 B44265	EMV (translocation
22	39	50.0	559	2 I58377	LMG19 - human
23	39	50.0	662	2 T23757	hypothetical prote
24	39	50.0	1124	2 T30340	dsRNA adenosine de
25	39	50.0	1296	2 T16859	hypothetical prote
26	39	50.0	1391	2 T20406	hypothetical prote
27	39	50.0	1502	1 NGBR1	CtC1/CtP3 transcri
28	38	48.7	236	2 A40143	placental lactogen
29	38	48.7	285	2 J70961	glutathione syntha

30	38	48.7	475	2 T23793	hypothetical prote
31	38	48.7	477	2 T32938	hypothetical prote
32	38	48.7	498	2 T38705	glutathione synthe
33	38	48.7	512	2 T37819	probable zinc meta
34	38	48.7	533	2 T10216	hypothetical prote
35	38	48.7	601	2 A27020	DIF-induced presta
36	38	48.7	622	2 E69006	glutamate synthase
37	38	48.7	709	2 T29692	hypothetical prote
38	38	48.7	775	2 S69515	replication initia
39	38	48.7	1090	2 T00533	SEN1 protein homol
40	38	48.7	1311	2 T08986	hypothetical prote
41	37.5	48.1	1711	2 C71625	variant-specific s
42	37	47.4	22	1 MXRN1	mu-conotoxin GI11a
43	37	47.4	183	2 S70007	finger protein zfo
44	37	47.4	227	2 T15772	hypothetical prote
45	37	47.4	261	2 S70006	finger protein zfo

ALIGNMENTS

RESULT 1
A33787
Vascular endothelial growth factor (version 1) - bovine
C:Species: Bos primigenius taurus (cattle)
C>Date: 16-Mar-1990 #sequence_revision 16-Mar-1990 #text_change 05-Nov-1999
C:Accession: A33787
R:Ritscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; CR
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived gro
A:Reference number: A33787; MUID:90121225
A:Accession: A33787
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-120 <TIS>
A:Cross-references: GB:M33750; NID:g163810; PIDN:AAA30805.1; PID:g163811
C:Keywords: alternative splicing

Query Match 66.0%; Score 51.5; DB 2; Length 120;
Best Local Similarity 61.1%; Pred. No. 0.39;
Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

QY 1 CRTK-----PEKCDKPRR 13
DB 103 CRPKDKARQEKCDKPRR 120

RESULT 2
S57956
ovine vascular endothelial growth factor - sheep
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C>Date: 13-Jan-1996 #sequence_revision 01-Mar-1996 #text_change 05-Nov-1999
C:Accession: S57956
R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.
Submitted to the EMBL Data Library, July 1995
A:Reference number: S57956
A:Accession: S57956
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-146 <RSD>
A:Cross-references: EMBL:X69506; NID:g899350; PIDN:CAA61677.1; PID:g899351

Query Match 66.0%; Score 51.5; DB 2; Length 146;
Best Local Similarity 61.1%; Pred. No. 0.46;
Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

QY 1 CRTK-----PEKCDKPRR 13
DB 129 CRPKDKARQEKCDKPRR 146

```
RESULT 3
T09850
albumin 2S storage protein precursor - upland cotton
C:Species: Gossypium hirsutum (upland cotton)
C:Date: 16-Jul-1999 #sequence_revision 16-Jul-1999 #text_change 16-Jul-1999
C:Accession: T09850
R:Galau, G.A.; Wang, H.Y.C.; Hughes, D.W.
submitted to the EMBL Data Library, January 1992
A:Description: Cotton Mat5 (Cl64) gene and cDNAs encoding a methionine-rich 2S albumin
A:Reference number: Z16886
A:Accession: T09850
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-139 <GAL>
A:Cross-references: EMBL:M83301; NID:q167310; PID:q167311
C:Genetics:
A:Gene: Mat5-D
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-139/Product: albumin 2S storage protein #status predicted <MAT>

Query Match
Best Local Similarity 52.6%; Score 41; DB 2; Length 139;
Matches 6; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

OY 1 CRTPEKCDKPRR 13
DB 124 CEMEPGRCDTPSR 136

RESULT 4
T09878
albumin 2S storage protein precursor Mat5-A - upland cotton
C:Species: Gossypium hirsutum (upland cotton)
C:Date: 16-Jul-1999 #sequence_revision 16-Jul-1999 #text_change 29-Oct-1999
C:Accession: T09878
R:Galau, G.A.; Wang, H.Y.C.; Hughes, D.W.
submitted to the EMBL Data Library, January 1992
A:Description: Cotton Mat5-A (Cl64) gene and Mat5-D cDNAs encoding methionine-rich 2S al
A:Reference number: Z16893
A:Accession: T09878
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-139 <GAL>
A:Cross-references: EMBL:M86213; NID:q167358; PID:q167359
C:Genetics:
A:Gene: Mat5-A
C:Keywords: storage protein
F:1-20/Domain: signal sequence #status predicted <SIG>
F:21-139/Product: albumin 2S storage protein Mat5-A #status predicted <MAT>

Query Match
Best Local Similarity 52.6%; Score 41; DB 2; Length 139;
Matches 6; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

OY 1 CRTPEKCDKPRR 13
DB 124 CEMEPGRCDTPSR 136

RESULT 5
A26983
regulatory protein QUTA - Emeritella nidulans
C:Species: Emeritella nidulans, Aspergillus nidulans
C:Date: 31-Mar-1989 #sequence_revision 31-Mar-1989 #text_change 12-Sep-1997
C:Accession: A26983
R:Berl, R.K.; Whittington, H.; Roberts, C.F.; Hawkins, A.R.
Nucleic Acids Res. 15, 7991-8001, 1987
A:Title: Isolation and characterization of the positively acting regulatory gene QUTA fr
A:Reference number: A26983; MUID:88040423
A:Accession: A26983
A:Molecule type: DNA
```

```
A:Residues: 1-825 <BER>
A:Genetics:
A:Gene: QUTA
C:Superfamily: unassigned GAL4-type zinc cluster proteins; GAL4 zinc dinuclear cluste
F:44-81/Domain: GAL4 zinc dinuclear cluster homology <GAL4>

Query Match
Best Local Similarity 52.6%; Score 41; DB 2; Length 825;
Matches 6; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

OY 1 CRTPEKCD 9
DB 52 CRSRKDKCD 60

RESULT 6
A71485
probable pbp2-transglycolase/transpeptidase - Chlamydia trachomatis (serotype D, stra
C:Species: Chlamydia trachomatis
C:Date: 13-Sep-1998 #sequence_revision 13-Sep-1998 #text_change 08-Oct-1999
C:Accession: A71485
R:Stephens, R.S.; Kaiman, S.; Lammel, C.J.; Fan, J.; Marathe, R.; Aravind, L.; Mitche
Science 282, 754-759, 1998
A:Title: Genome sequence of an obligate intracellular pathogen of humans: Chlamydia t
A:Reference number: A71570; MUID:99000809
A:Accession: A71485
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-1080 <BRN>
A:Cross-references: GB:AE001338; GB:AE001273; NID:g3329126; PIDN:AAC68277.1; PID:g332
A:Experimental source: serotype D, strain UW-3/Cx
C:Genetics:
A:Gene: pbpB

Query Match
Best Local Similarity 52.6%; Score 41; DB 2; Length 1080;
Matches 6; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

OY 1 CRTPEKCDK 10
DB 53 CRSVPEHCDR 62

RESULT 7
T12727
hypothetical protein 11 - Methanobacterium phage ps1M2
C:Species: Methanobacterium phage ps1M2
C:Date: 13-Aug-1999 #sequence_revision 13-Aug-1999 #text_change 05-May-2000
C:Accession: T12727
R:Pfister, P.; Wasserfallen, A.; Stettler, R.; Leisinger, T.
submitted to the EMBL Data Library, May 1998
A:Description: Archaeophage ps1M2 complete genomic DNA.
A:Reference number: Z17578
A:Accession: T12727
A:Status: translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-216 <PFI>
A:Cross-references: EMBL:AF065411; NID:g3249585; PID:g3249596; PIDN:AAC27050.1
A:Experimental source: host Methanobacterium thermoautotrophicum strain Marburg
C:Superfamily: Methanobacterium phage ps1M2 hypothetical protein 11

Query Match
Best Local Similarity 51.3%; Score 40; DB 2; Length 216;
Matches 7; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

OY 1 CRTPEKCDKPRR 13
DB 162 CRCHPEPCDENG 174
```

```

RESULT 8
BVECLT
bacteriophage T4 late gene expression-blocking protein - Escherichia coli cryptic proph
C:Species: Escherichia coli
C:Date: 31-Mar-1990 #sequence_revision 05-Dec-1997 #text_change 16-Jul-1999
C:Accession: H64858; A30386; Q00194
R:Blattner, F.R.; Plunkett III, G.; Bloch, C.A.; Perna, N.T.; Burland, V.; Riley, M.; Co
A: Rose, D.J.; Mau, B.; Shao, Y.
Science 277, 1453-1462, 1997
A:Title: The complete genome sequence of Escherichia coli K-12.
A:Reference number: A64720; MUID:97426617
A:Accession: H64858
A:Status: nucleic acid sequence not shown; translation not shown
A:Molecule type: DNA
A:Residues: 1-297 <BLAT>
A:Cross-references: GB:AE000214; GB:U00096; NID:g1787382; PIDN:AACT4223.1; PID:g1787385;
A:Experimental source: strain K-12, substrain MG1655
R:Kao, C.; Snyder, L.
J. Bacteriol. 170, 2056-2062, 1988
A:Title: The lit gene product which blocks bacteriophage T4 late gene expression is a me
A:Reference number: A30386; MUID:88197991
A:Accession: A30386
A:Molecule type: DNA
A:Residues: 1-120, 'QVANHGL', 128, 'NV', 131, 'SQKH', 136-297 <KAO>
A:Cross-references: GB:M19634; NID:g146626; PIDN:AA24074.1; PID:g146627
A:Experimental source: strain JM101
C:Genetics:
A:Gene: lit
A:Map position: 25 min
A:Genome: cryptic prophage e14
C:Function:
A:Description: interacts with a short DNA sequence of the major capsid protein gene of b
A:Note: may interfere with coordination of protein synthesis and assembly of T4 heads
C:Superfamily: bacteriophage T4 late gene expression blocking protein
C:Keywords: transmembrane protein; zinc
F:61-82/Domain: transmembrane #status predicted <TM1>
F:149-178/Domain: transmembrane #status predicted <TM2>
F:160,164/Binding site: zinc (His) #status predicted
F:161/Active site: Glu #status predicted

Query Match 51.3%; Score 40; DB 1; Length 297;
Best local Similarity 54.5%; Pred. No. 47;
Matches 6; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 CRTKPKCDKP 11
DB 123 CESMPKCKPKP 133

RESULT 9
TVEFDS
protein-tyrosine kinase (EC 2.7.1.112) src2 - fruit fly (Drosophila melanogaster)
C:Species: Drosophila melanogaster
C:Date: 31-Mar-1989 #sequence_revision 31-Mar-1989 #text_change 11-Jun-1999
C:Accession: A27807
R:Gregory, R.J.; Kammeyer, K.L.; Vincent III, W.S.; Wadsworth, S.G.
Mol. Cell. Biol. 7, 2119-2127, 1987
A:Title: Primary sequence and developmental expression of a novel Drosophila melanogaste
A:Reference number: A27807; MUID:87257924
A:Accession: A27807
A:Molecule type: mRNA
A:Residues: 1-590 <GRE>
A:Cross-references: GB:M16599; NID:g158498; PIDN:AAA28912.1; PID:g158499
A:Note: the gene is designated as Dsrc28C
C:Genetics:
A:Gene: src2
A:Cross-references: FlyBase:FBgn0003502
A:Map position: 29A
C:Superfamily: protein-tyrosine kinase src; protein kinase homology; SH2 homology; SH3 h
C:Keywords: ATP; autophosphorylation; phosphoprotein; phosphotransferase; transforming p
F:152-201/Domain: SH3 homology <SH3>

```

```

F:214-307/Domain: SH2 homology <SH2>
F:328-588/Domain: protein kinase homology <KIN>
F:336-344/Region: protein kinase ATP-binding motif
F:358/Active site: Lys #status predicted
F:481/Binding site: phosphate (Tyr) (covalent) (by autophosphorylation) #status predi

Query Match 51.3%; Score 40; DB 1; Length 590;
Best local Similarity 54.5%; Pred. No. 82;
Matches 6; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 CRTKPKCDKP 11
DB 301 CRTKSPCDKP 111

RESULT 10
I4689
gene NK10 protein - mouse
C:Species: Mus musculus (house mouse)
C:Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 08-Oct-1999
C:Accession: I46889; S49078
R:Langre, R.; Christoph, A.; Thiesen, H.J.; Vopper, G.; Johnson, K.R.; Lemaire, L.; Pl
DNA Cell Biol. 14, 971-981, 1995
A:Title: Developmentally regulated mouse gene NK10 encodes a zinc finger Repressor p
A:Reference number: I46889; MUID:96069544
A:Accession: I46889
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-636 <RES>
A:Cross-references: EMBL:X79828; NID:g506501; PIDN:CAA56225.1; PID:g506502
C:Superfamily: zinc finger protein ZFP-36

Query Match 51.3%; Score 40; DB 2; Length 636;
Best local Similarity 58.3%; Pred. No. 85;
Matches 7; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 2 RTKPKCDKPR 13
DB 204 KRPKCDKCRK 215

RESULT 11
B47447
calcium channel protein alpha-1 chain (variant doe-4) - electric ray (Discoptye ommat
C:Species: Discoptye ommata
C:Date: 21-Jan-1994 #sequence_revision 18-Nov-1994 #text_change 13-Sep-1998
C:Accession: B47447
R:Horne, W.A.; Ellinor, P.T.; Imman, I.; Zhou, M.; Tsien, R.W.; Schwarz, T.L.
Proc. Natl. Acad. Sci. U.S.A. 90, 3787-3791, 1993
A:Title: Molecular diversity of Ca(2+) channel alpha 1 subunits from the marine ray D
A:Reference number: B47447; MUID:93248175
A:Accession: B47447
A:Status: preliminary; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-2326 <HOR>
A:Note: sequence extracted from NCBI backbone (NCBIP:130673)
C:Superfamily: voltage-dependent calcium channel protein alpha-1 chain

Query Match 51.3%; Score 40; DB 2; Length 2326;
Best local Similarity 60.0%; Pred. No. 2,6e+02;
Matches 6; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 4 KPEKCDKPR 13
DB 838 QPESCEAPRR 847

RESULT 12
A57278
fibrillin-2 precursor - mouse

```

C:Species: Mus musculus (house mouse)
 C:Date: 23-Feb-1996 #sequence_revision 23-Feb-1996 #text_change 11-Jan-2000
 C:Accession: A57278
 R:Zhang, H.; Hu, W.; Ramirez, F.
 J. Cell Biol. 129, 1165-1176, 1995
 A:Title: Developmental expression of fibrillin genes suggests heterogeneity of extracellular matrix
 A:Reference number: A57278; MUID:95263670
 A:Accession: A57278
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 1-2907 <ZHA>
 A:Cross-references: GB:I39790; NID:9762830; PIDN:AAA74908.1; PID:9762831
 C:Superfamily: unassigned EGF-related proteins; EGF homology
 F:1239-1274/Domain: EGF homology <EGF>
 F:2488-2523/Domain: EGF homology <EGF>

Query Match 51.3%; Score 40; DB 2; Length 2907;
 Best Local Similarity 58.3%; Pred. No. 3.1e+02;
 Matches 7; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 CRTKPKCDKPR 12
 ||||| |:
 Db 2335 CRTKPGICENGR 2346

RESULT 13
 A54105
 fibrillin-2 precursor - human
 C:Species: Homo sapiens (man)
 C:Date: 09-Sep-1994 #sequence_revision 09-Sep-1994 #text_change 11-Jan-2000
 C:Accession: A54105
 R:Zhang, H.; Apfeldroth, S.D.; Hu, W.; Davis, E.C.; Sanguinetti, C.; Bonadio, J.; Mechem, J. Cell Biol. 124, 855-863, 1994
 A:Title: Structure and expression of fibrillin-2, a novel microfibrillar component preferentially expressed in connective tissue
 A:Reference number: A54105; MUID:94165150
 A:Accession: A54105
 A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual translation
 A:Molecule type: mRNA
 A:Residues: 1-2918 <ZHA>
 A:Cross-references: GB:U03272
 C:Genetics:
 A:Gene: GDB:FBN2
 A:Cross-references: GDB:128122; OMIM:121050
 A:Map position: 5q23.5q31
 C:Superfamily: unassigned EGF-related proteins; EGF homology
 C:Keywords: extracellular protein
 F:1-29/Domain: signal sequence #status predicted <SIG>
 F:30-2918/Product: fibrillin-2 #status predicted <MAT>
 F:1245-1280/Domain: EGF homology <EGF>
 F:1970-2013/Domain: EGF homology <EGF>

Query Match 51.3%; Score 40; DB 2; Length 2918;
 Best Local Similarity 58.3%; Pred. No. 3.1e+02;
 Matches 7; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 CRTKPKCDKPR 12
 ||||| |:
 Db 2341 CRTKPGICENGR 2352

RESULT 14
 S52130
 vascular endothelial growth factor - pig
 C:Species: Sus scrofa domestica (domestic pig)
 C:Date: 14-Jul-1995 #sequence_revision 21-Jul-1995 #text_change 05-Nov-1999
 C:Accession: S52130
 R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.
 Biochim. Biophys. Acta 1260, 235-238, 1995
 A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growth factor
 A:Reference number: S52130; MUID:95143284
 A:Accession: S52130

A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-190 <SHA>
 A:Cross-references: GB:X81380; NID:9587559; PIDN:CMA57143.1; PID:9587560

Query Match 50.0%; Score 39; DB 2; Length 190;
 Best Local Similarity 85.7%; Pred. No. 46;
 Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKPR 13
 :|||||
 Db 184 KCDKPR 190

RESULT 15
 B40080
 vascular endothelial growth factor precursor (version 2) - bovine
 C:Species: Bos primigenius taurus (cattle)
 C:Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 05-Nov-1999
 C:Accession: B40080; B33787; A33255
 R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
 Science 246, 1306-1309, 1989
 A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
 A:Reference number: B40080; MUID:90069608
 A:Accession: B40080
 A:Molecule type: mRNA
 A:Residues: 1-190 <LEU>
 A:Cross-references: GB:M32976; NID:9163006; PIDN:AAA30502.1; PID:9163007
 R:Tscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; C. Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
 A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth factor family
 A:Reference number: B33787; MUID:90121225
 A:Accession: B33787
 A:Molecule type: mRNA
 A:Residues: 27-190 <TIS>
 A:Cross-references: GB:M31836; NID:9163808; PIDN:AAA30804.1; PID:9163809
 R:Ferrara, N.; Henzel, W.J.
 Biochem. Biophys. Res. Commun. 161, 851-858, 1989
 A:Title: Pituitary follicular cells secrete a novel heparin-binding growth factor specific for endothelial cells
 A:Reference number: A33255; MUID:89286596
 A:Accession: A33255
 A:Molecule type: protein
 A:Residues: 27-31 <FER>
 C:Keywords: alternative splicing; glycoprotein
 F:1-26/Domain: signal sequence #status predicted <SIG>
 F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>
 F:100/Binding site: carbohydrate (asn) (covalent) #status predicted

Query Match 50.0%; Score 39; DB 2; Length 190;
 Best Local Similarity 85.7%; Pred. No. 46;
 Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKPR 13
 :|||||
 Db 184 KCDKPR 190

Search completed: November 9, 2000, 15:31:55
 Job time: 176 sec

Thu Nov 9 15:49:37 2000

us-09-266-543-3.rpt

Page 5

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:40:14 ; Search time 41.83 Seconds

(without alignments)
9.929 Million cell updates/sec

Title: US-09-266-543-3

Perfect score: 78

Sequence: 1 CRTKPEKCKPRR 13

Scoring table: BLOSUM62

Searched: 87993 seqs, 31947931 residues

Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt_39:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	51.5	66.0	146	1	VEGF_SHEEP
2	41	52.6	825	1	P50412 ovls arles
3	40	51.3	297	1	OUTA_EMENT
4	40	51.3	590	1	LIT_ECOLI
5	40	51.3	636	1	SRC2_DROME
6	40	51.3	2326	1	ZF90_MOUSE
7	40	51.3	2907	1	CCAB_DISO
8	40	51.3	2911	1	FBN2_MOUSE
9	39	50.0	164	1	FBN2_HUMAN
10	39	50.0	190	1	VEGF_CAVPO
11	39	50.0	190	1	VEGF_BOVIN
12	39	50.0	190	1	VEGF_PIG
13	39	50.0	214	1	VEGF_RAT
14	39	50.0	215	1	VEGF_MOUSE
15	39	50.0	559	1	VEGF_HUMAN
16	39	50.0	1483	1	ENL_HUMAN
17	39	50.0	2813	1	CYPL_YEAST
18	38	48.7	236	1	VWF_CANFA
19	38	48.7	498	1	PLC_SHEEP
20	38	48.7	512	1	GSHB_SCHPO
21	38	48.7	775	1	VE94_SCHPO
22	37	47.4	22	1	REP_BHPL
23	37	47.4	230	1	CKML_CONGE
24	37	47.4	310	1	T2E7_ECOLI
25	37	47.4	450	1	KITH_HSVF
26	37	47.4	450	1	KITH_HSVF
27	37	47.4	463	1	TH12_YEAST
28	37	47.4	465	1	OD02_YEAST
29	37	47.4	535	1	NRRR_CHICK
30	37	47.4	705	1	YGH1_CAEEL
31	37	47.4	1433	1	YK2_YEAST
32	37	47.4	1474	1	CAT8_YEAST
33	37	47.4	1547	1	A2MG_HUMAN
					TOP2_BOMMO

34	37	47.4	3746	1	ACVS_PENCH
35	37	47.4	3791	1	ACVT_PENCH
36	37	47.4	3951	1	VGFL_IBVB
37	36.5	46.8	76	1	TXO3_AGRAP
38	36.5	46.8	297	1	SGS4_DROME
39	36	46.2	265	1	H1_PEA
40	36	46.2	357	1	YAOC_SCHPO
41	36	46.2	398	1	VAIP_ECOLI
42	36	46.2	495	1	GLCL_SOYBN
43	36	46.2	512	1	OPUD_BACSU
44	36	46.2	769	1	PIGR_RAT
45	36	46.2	816	1	QALF_NEUCR

ALIGNMENTS

RESULT	1	STANDARD	PRT	146 AA.
VEGF_SHEEP				
ID	VEGF_SHEEP			
AC	P50412:1996 (Rel. 34, Created)			
DT	01-OCT-1996 (Rel. 34, Last sequence update)			
DT	01-OCT-1996 (Rel. 34, Last sequence update)			
DT	01-NOV-1997 (Rel. 35, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).			
GN	VEGF.			
OS	Ovis aries (Sheep).			
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;			
OC	Bovidae; Caprinae; Ovis.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE-KIDNEY;			
RX	MEDLINE; 97117958.			
RA	Redmer D.A., Dal Y., Li J., Charnock-Jones D.S., Smith S.K.,			
RT	Reynolds L.P., Moor R.M.;			
RT	"Characterization and expression of vascular endothelial growth factor (VEGF) in the ovine corpus luteum."			
RL	J. Reprod. Fert. 108:157-165(1996).			
CC	- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.			
CC	- SUBUNIT: HOMODIMER. DISULFIDE-LINKED.			
CC	- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).			
CC	- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.			
CC	-----			
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/ or send an email to license@sib-sib.ch).			
CC	-----			
DR	EMBL; X89506; CA61677.1; -.			
DR	HSSP; P15692; 1VPF.			
DR	INTERPRO: IPR003072; -.			
DR	PFAM: PF00341; PDGF_1.			
DR	PROSITE: PS00249; PDGF_1; 1.			
DR	PROSITE: PS0273; PDGF_2; 1.			
KW	Mitogen; Growth factor; Glycoprotein; Signal.			
FT	SIGNAL	1	26	BY SIMILARITY.
FT	CHAIN	27	146	VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT	DISULFID	51	93	BY SIMILARITY.
FT	DISULFID	82	127	BY SIMILARITY.
FT	DISULFID	86	129	BY SIMILARITY.
FT	DISULFID	76	76	INTERCHAIN (BY SIMILARITY).
FT	DISULFID	85	85	INTERCHAIN (BY SIMILARITY).
FT	CARBOHD	100	100	N-LINKED (GLCNAc...) (POTENTIAL).
SO	SEQUENCE	146 AA;	17247 MW;	4E792CB557F91760 CRC64;

Query Match 66.0%; Score 51.5; DB 1; Length 146;
 Best Local Similarity 61.1%; Pred. No. 0.14;
 Matches 11; Conservative 0; Mismatches 2; Indels 5; Gaps 1;

QY 1 CRTK-----PECKDKPRR 13
 || | |||||
 Db 129 CRPKKAKARCKDKPRR 146

RESULT 2
 ID OUTA_EMENT STANDARD; PRT; 825 AA.
 AC P10563;
 DT 01-JUL-1989 (Rel. 11, Created)
 DT 01-JUL-1989 (Rel. 11, Last sequence update)
 DT 01-APR-1993 (Rel. 25, Last annotation update)
 DE QUINIC ACID UTILIZATION ACTIVATOR.
 GN OUTA.
 OS Emericella nidulans (Aspergillus nidulans).
 OC Eukaryota; Fungi; Ascomycota; Eurotiiales; Trichocomaceae; Emericella.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 88040423.
 RA Beiri R.K., Whittington H., Roberts C.F., Hawkins A.R.;
 RT "Isolation and characterization of the positively acting regulatory
 gene OUTA from Aspergillus nidulans";
 RL Nucleic Acids Res. 15:7991-8001(1987).
 CC -1- FUNCTION: TRANSCRIPTION ACTIVATION OF GENES FOR ENZYME AND
 CC PROTEINS OF QUINATE METABOLISM BY BINDING TO A 16 BASE-PAIR
 CC SEQUENCE (CONSENSUS GGATANNNTTATCC) IN FRONT OF EACH QUT GENE.
 CC -1- SUBCELLULAR LOCATION: NUCLEAR.
 CC -1- SIMILARITY: CONTAINS A ZN(2)-CYS(6), FUNGAL-TYPE BINCLER
 CC CLUSTER DOMAIN.

 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----

DR EMBL; X06252; CAA29594.1; -;
 DR PIR; A26983; A26983.
 DR HSSP; P25502; 1AUY.
 DR INTERPRO: IPR001138; -;
 DR PFAM: PF00172; Zn_c1us; 1.
 DR PRINTS: PR00054; FUNGAL_NCTS.
 DR PROSITE: PS00463; ZN2_CY6_FUNGAL_1; 1.
 DR PROSITE: PS50048; ZN2_CY6_FUNGAL_2; 1.
 KM Transcription regulation; Activator; DNA-binding; Nuclear protein;
 KW Zinc; Metal-binding; Quinate metabolism.
 FT DNA BIND 49 76 ZN(2)-CYS(6), FUNGAL-TYPE.
 SQ SEQUENCE 825 AA; 90408 MW; AEC531848BFA792 CRC64;

Query Match 52.6%; Score 41; DB 1; Length 825;
 Best Local Similarity 66.7%; Pred. No. 29;
 Matches 6; Conservative 2; Mismatches 1; Indels 0; Gaps 0;
 QY 1 CRTKPKCD 9
 || | |||||
 Db 52 CRSKDKCD 60

RESULT 3
 ID LIT_ECOLI STANDARD; PRT; 297 AA.
 AC P11072; P77283;
 DT 01-JUL-1989 (Rel. 11, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)

DT 15-DEC-1998 (Rel. 37, Last annotation update)
 DE BACTERIOPHAGE T4 LATE GENE EXPRESSION BLOCKING PROTEIN (GPLIT).
 GN LIT.
 OS Escherichia coli.
 OC Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
 OC Escherichia.

RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN-JM101;
 RX MEDLINE; 88197991.
 RA Kao C., Snyder L.;
 RT "The lit gene product which blocks bacteriophage T4 late gene
 RT expression is a membrane protein encoded by a cryptic DNA element,
 RT el4";
 RL J. Bacteriol. 170:2056-2062(1988).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN-K12 / MG1655;
 RX MEDLINE; 97426617.

RA Blattner F.R., Plunkett G. III, Bloch C.A., Perna N.T., Burland V.,
 RA Riley M., Collado-Vides J., Glasner J.D., Rode C.K., Mayhew G.F.,
 RA Gregor J., Davis N.W., Kirkpatrick H.A., Goeden M.A., Rose D.J.,
 RA Mau B., Shao Y.;
 RT "The complete genome sequence of Escherichia coli K-12";
 RL Science 277:1234-1238(1997).
 RN [3]
 RP SEQUENCE FROM N.A.
 RC STRAIN-K12;
 RX MEDLINE; 97061202.

RA Oshima T., Alba H., Baba T., Fujita K., Hayashi K., Honjo A.,
 RA Ikemoto K., Inada T., Itoh T., Kajihara M., Kanai K., Kashimoto K.,
 RA Kimura S., Kitagawa M., Makino K., Masuda S., Miki T., Mizoduchi K.,
 RA Mori H., Motomura K., Nakamura Y., Nishimoto Y., Nishio Y., Saito N.,
 RA Samped G., Seki Y., Tagami H., Takemoto K., Wada C., Yamamoto Y.,
 RA Yano M., Horinouchi T.;
 RT "A 718-kb DNA sequence of the Escherichia coli K-12 genome
 RT corresponding to the 12.7-28.0 min region on the linkage map";
 RL DNA Res. 3:137-155(1996).

CC -1- FUNCTION: INTERACTS WITH A SHORT DNA SEQUENCE ABOUT ONE-QUARTER
 CC OF THE WAY INTO THE MAJOR CAPSID PROTEIN GENE 23 OF T4, AND THE
 CC INHIBITION OCCURS WHEN THIS LATE GENE OF THE VIRUS IS EXPRESSED.

 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----

DR EMBL; M19634; AA24074.1; -;
 DR EMBL; AE000214; AAC74223.1; -;
 DR EMBL; D90748; BA35959.1; -;
 DR EMBL; D90749; BA35968.1; -;
 DR PIR; Q00194; BEVCLT.
 DR ECGENE; EG10535; LIT.
 KW Inner membrane; Transmembrane.
 FT TRANSMEM 61 82
 FT TRANSMEM 149 178 POTENTIAL.
 FT CONFLCT 121 135 TGCESWPKCKPKPEA -> QVANHGILKNVPSQKH (IN
 FT REF. 1).
 SQ SEQUENCE 297 AA; 33762 MW; 8A06C0EB82PB1AF CRC64;

Query Match 51.3%; Score 40; DB 1; Length 297;
 Best Local Similarity 54.5%; Pred. No. 17;
 Matches 6; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 CRTKPKCKP 11
 | | | | | | | | | |
 Db 123 CESWPKCKPKP 133

RESULT 4					
ID	SRC2_DROME	STANDARD:	PRT:	590 AA.	
AC	P08630; P11361;				
DT	01-AUG-1988 (Rel. 08, Created)				
DT	01-AUG-1988 (Rel. 08, Last sequence update)				
DT	01-NOV-1997 (Rel. 35, Last annotation update)				
DE	TYROSINE-PROTEIN KINASE SRC2Bc (EC 2.7.1.112).				
GN	BTK29A OR SRC29A OR SRC2.				
OS	Drosophila melanogaster (Fruit fly).				
OC	Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;				
CC	Euryarchaeota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;				
CC	Empidoidea; Drosophilidae; Drosophila.				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RA	MEDLINE; 87257924.				
RT	Gregory R.J., Kammermeyer K.L., Vincent W.S. III, Wadsworth S.G.;				
RT	"Primary sequence and developmental expression of a novel Drosophila				
RL	melanogaster src gene".				
RL	Mol. Cell. Biol. 7:2119-2127(1987).				
RN	[2]				
RP	SEQUENCE OF 356-484 FROM N.A.				
RX	MEDLINE; 85215606.				
RA	Wadsworth S.C., Madhavan K., Bildeau-Wentworth D.;				
RT	"Maternal inheritance of transcripts from three Drosophila				
RT	src-related genes".				
RL	Nucleic Acids Res. 13:2153-2170(1985).				
RN	[3]				
RP	SIMILARITY WITH BTK SUBFAMILY.				
RA	Stolander K.;				
RL	Unpublished observations (JUL-1997).				
CC	-I- CATALYTIC ACTIVITY: ATP + A PROTEIN TYROSINE - ADP +				
CC	PROTEIN TYROSINE PHOSPHATE.				
CC	-I- DEVELOPMENTAL STAGE: EXPRESSED PREDOMINANTLY IN EARLY TO MIDDLE				
CC	EMBRYOGENESIS.				
CC	-I- SIMILARITY: CONTAINS 1 SH2 DOMAIN.				
CC	-I- SIMILARITY: CONTAINS 1 SH3 DOMAIN.				
CC	-I- SIMILARITY: TO OTHER PROTEIN-TYROSINE KINASES IN THE CATALYTIC				
CC	DOMAIN. BELONGS TO THE BTK SUBFAMILY.				
CC	-----				
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration				
CC	between the Swiss Institute of Bioinformatics and the EMBL outstation -				
CC	the European Bioinformatics Institute. There are no restrictions on its				
CC	use by non-profit institutions as long as its content is in no way				
CC	modified and this statement is not removed. Usage by and for commercial				
CC	entities requires a license agreement (see http://www.isb-sib.ch/announce/				
CC	or send an email to license@sib-sib.ch).				
CC	-----				
DR	EMBL; M16599; AAA28912.1; -				
DR	EMBL; X02305; CAZ26170.1; ALT_TERM.				
DR	PIR; A27807; TVEFDS.				
DR	PIR; A23051; A23051.				
DR	HSSP; P11362; IREGI.				
DR	FLYBASE; FBgn0005502; Btk29A.				
DR	INTERPRO; IPR000719; -				
DR	INTERPRO; IPR000980; -				
DR	INTERPRO; IPR001245; -				
DR	INTERPRO; IPR001452; -				
DR	PFAM; PF00017; SH2_1.				
DR	PFAM; PF00018; SH3_1.				
DR	PFAM; PF00069; PKinase_1.				
DR	PRINTS; PR00109; TYRKINASE.				
DR	PROSITE; PS00107; PROTEIN_KINASE_ATP_1.				
DR	PROSITE; PS00109; PROTEIN_KINASE_TYR_1.				
DR	PROSITE; PS50011; PROTEIN_KINASE_DOM_1.				
DR	PROSITE; PS50011; SH2_1.				
DR	PROSITE; PS50002; SH3_1.				
KM	Tyrosine-protein kinase; Proto-oncogene; Phosphorylation;				
KW	Transferase; ATP-binding; SH3 domain; SH2 domain.				
FT	DOMAIN 66 92 GLY-RICH.				
FT	DOMAIN 145 206 SH3.				
FT	DOMAIN 214 307 SH2.				
FT	DOMAIN 330 583 PROTEIN KINASE.				

```

FT NP_BIND 336 344 ATP (BY SIMILARITY).
FT BINDING 358 358 ATP (BY SIMILARITY).
FT ACT_SITE 451 451 BY SIMILARITY.
FT MOD_RS 481 481 PHOSPHORYLATION (AUTO-) (BY SIMILARITY).
FT CONFLICT 461 461 S -> F (IN REF. 2).
FT SEQUENCE 590 AA; 65887 MW; C7FDE3CECE5E3DE19 CRC64;

Qy 1 CRTKPCDCKP 11
   ||| |||:|
Db 301 CRKSSPCDR 311

RESULT 5
ZFP90_MOUSE STANDARD; PRT: 636 AA.
ID ZFP90_MOUSE
AC Q61967;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 15-DEC-1998 (Rel. 37, Last annotation update)
DE ZINC_FINGER_PROTEIN 90 (ZFP-90) (ZINC_FINGER_PROTEIN NK10).
GN ZFP90 OR NK10.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6; TISSUE=BRAIN;
RX MEDLINE: 96069544.
RA Lange R., Christoph A., Thiesen H.-J., Vopper G., Johnson K.R.,
RA Lemaire L., Ploman M., Cremer H., Barthels D., Heinlein U.A.O.;
RT "Developmentally regulated mouse gene NK10 encodes a zinc finger
RT repressor protein with differential DNA-binding domains.";
RL DNA Cell Biol. 14:971-981(1995).
CC -1 FUNCTION: MAY FUNCTION AS A REPRESSOR OR SILENCER PROTEIN, AND
CC MOST LIKELY EXERTS ITS REPRESSING ACTIVITY UPON ZINC-DEPENDENT
CC BINDING TO DNA. MAY BE INVOLVED IN PROPER SPERMATOGENESIS BY
CC REPRESENTING THE EXPRESSION OF GENES UNNECESSARY OR INCOMPATIBLE
CC WITH THE MAINTENANCE OF A HAPLOID CELL STATE.
CC -1 SUBCELLULAR LOCATION: NUCLEAR.
CC -1 TISSUE SPECIFICITY: BRAIN, HEART, SPLEEN, THYMUS, AND TESTIS.
CC -1 DEVELOPMENTAL STAGE: THERE IS A MARKED INCREASE AFTER POSTNATAL
CC STAGES 18-20 (STIMULANEOUSLY TO THE APPEARANCE OF HAPLOID CELL
CC STAGES). MAXIMAL EXPRESSION IS OBSERVED AROUND 2 WEEKS
CC POSTNATALLY, WITH THE EXCEPTION OF BRAIN AND TESTIS, WHERE THE
CC EXPRESSION IS HIGHEST IN EARLIER DEVELOPMENTAL STAGES.
CC -1 SIMILARITY: BELONGS TO THE KRUEPPEL SUBFAMILY OF C2H2-TYPE ZINC-
CC FINGER PROTEINS.
CC -1 SIMILARITY: CONTAINS 1 KRAB BOX.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (see http://www.isb-sdb.ch/announce/
CC or send an email to license@sdb-sdb.ch).
CC -----
DR EMBL: X79828; CAA56225.1; -.
DR HSSP: P08047; ISP2.
DR MGD: MGI:104786; ZFP90.
DR INTERPRO: IPR000822; -.
DR INTERPRO: IPR001909; -.
DR PFM: PF01352; KRA1.1.
DR PFM: PF00096; zF-C2H2; 13.
DR PRINTS: PRO0048; ZINC_FINGER.
DR PROSITE: PS00028; ZINC_FINGER_C2H2; 13.
DR Zinc-finger, Metal-binding; DNA-binding; Nuclear protein; Repeat;
KW Transcription regulation; Repressor.

```

```

FT DOMAIN 16 53 KRAB BOX ("A BOX").
FT DOMAIN 54 85 KRAB BOX ("B BOX").
FT ZN_FING 208 628 ZINC-FINGERS.
FT ZN_FING 208 230 C2H2-TYPE.
FT ZN_FING 250 272 C2H2-TYPE.
FT ZN_FING 278 300 C2H2-TYPE.
FT ZN_FING 306 328 C2H2-TYPE.
FT ZN_FING 334 356 C2H2-TYPE.
FT ZN_FING 362 384 C2H2-TYPE.
FT ZN_FING 390 412 C2H2-TYPE.
FT ZN_FING 446 468 C2H2-TYPE.
FT ZN_FING 494 516 C2H2-TYPE.
FT ZN_FING 522 544 C2H2-TYPE.
FT ZN_FING 550 572 C2H2-TYPE.
FT ZN_FING 578 600 C2H2-TYPE.
FT ZN_FING 606 628 C2H2-TYPE.
SO SEQUENCE 636 AA: 72423 MW: 1269BEC7729E369F CRC64:

Query Match 51.3%; Score 40; DB 1; Length 636;
Best Local Similarity 58.3%; Pred. No. 33;
Matches 7; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

OY 2 RTKPKCKPR 13
DB 204 KKKPKCDKCRK 215

RESULT 6
CCAB_DISOM STANDARD: PRT: 2326 AA.
ID P56698;
AC 15-JUL-1999 (Rel. 38, Created)
DT 15-JUL-1999 (Rel. 38, Last sequence update)
DT 30-MAY-2000 (Rel. 39, Last annotation update)
DE PROBABLE VOLTAGE-DEPENDENT N-TYPE CALCIUM CHANNEL ALPHA-1B SUBUNIT
DE (DOE-4).
OS Discopyle ommata (Electric ray).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Chondrichthyes;
OC Elasmobranchii; Squales; Hypnosquales; Pristiostomata; Batoidae;
OC Torpediniformes; Narcinidae; Discopyle.
RN [1]
RP SEQUENCE FROM N. A.
RC TISSUE-ELECTRIC LOBE;
RX MEDLINE: 93248175.
RA Horne W. A., Ellinger P. T., Inman I., Zhou M., Tsien R. W., Schwarz T. L.;
RT "Molecular diversity of Ca2+ channel alpha 1 subunits from the marine
ray Discopyle ommata."
RL Proc. Natl. Acad. Sci. U.S.A. 90:3787-3791(1993).
CC -1- FUNCTION: THE ISOFORM ALPHA-1B GIVES RISE TO N-TYPE CALCIUM
CURRENTS. N-TYPE CALCIUM CHANNELS BELONG TO THE "HIGH-VOLTAGE
ACTIVATED" (HVA) GROUP (BY SIMILARITY).
CC -1- SUBUNIT: VOLTAGE-DEPENDENT CALCIUM CHANNELS ARE MULTISUBUNIT
COMPLEXES, CONSISTING OF ALPHA-1, ALPHA-2, BETA AND DELTA SUBUNITS
IN A 1:1:1:1 RATIO. THE CHANNEL ACTIVITY IS DIRECTED BY THE PORE-
FORMING AND VOLTAGE-SENSITIVE ALPHA-1 SUBUNIT. IN MANY CASES, THIS
SUBUNIT IS SUFFICIENT TO GENERATE VOLTAGE-SENSITIVE CALCIUM
CHANNEL ACTIVITY. THE AUXILIARY SUBUNITS BETA AND ALPHA-2/DELTA
LINKED BY A DISULFIDE BRIDGE REGULATE THE CHANNEL ACTIVITY (BY
SIMILARITY).
CC -1- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (BY SIMILARITY).
CC -1- ALTERNATIVE PRODUCTS: AT LEAST 2 ISOFORMS ARE PRODUCED BY
ALTERNATIVE SPLICING.
CC -1- TISSUE SPECIFICITY: EXPRESSION IS HIGHER IN THE ELECTRIC LOBE THAN
IN THE FOREBRAIN.
CC -1- DOMAIN: EACH OF THE FOUR INTERNAL REPEATS CONTAINS FIVE
HYDROPHOBIC TRANSMEMBRANE SEGMENTS (S1, S2, S3, S5, S6) AND ONE
POSITIVELY CHARGED TRANSMEMBRANE SEGMENT (S4). S4 SEGMENTS
PROBABLY REPRESENT THE VOLTAGE-SENSOR AND ARE CHARACTERIZED BY A
SERIES OF POSITIVELY CHARGED AMINO ACIDS AT EVERY THIRD POSITION.
CC -1- PTM: PHOSPHORYLATED IN VITRO BY CAM-KINASE II, CAK, PKC AND GSK
(BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE CALCIUM CHANNEL ALPHA-1 SUBUNITS

```

```

CC CC
CC FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.embnet.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL: L12532; NOT_ANNOTATED_CDS.
CC INTERPRO: IPR000636;
CC INTERPRO: IPR002048;
CC INTERPRO: IPR002077;
CC PFM: PFM00036; ehand: 1.
CC PFM: PFM00520; ion.trans: 4.
CC PRINTS: PR00167; CACHANNEL.
CC KW Ionic channel; Transmembrane; Ion transport; Voltage-gated channel;
CC Calcium channel; Glycoprotein; Repeat; Multigene family;
CC Calcium-binding; Phosphorylation; Alternative splicing.
CC REPEAT 458 702
CC REPEAT 75 351
CC REPEAT 1134 1416
CC REPEAT 1453 1708
CC I.
CC II.
CC III.
CC IV.
CC CYTOPLASMIC (POTENTIAL).
CC S1 OF REPEAT I (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S2 OF REPEAT I (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S3 OF REPEAT I (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S4 OF REPEAT I (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S5 OF REPEAT I (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S6 OF REPEAT I (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S1 OF REPEAT II (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S2 OF REPEAT II (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S3 OF REPEAT II (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S4 OF REPEAT II (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S5 OF REPEAT II (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S6 OF REPEAT II (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S1 OF REPEAT III (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S2 OF REPEAT III (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S3 OF REPEAT III (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S4 OF REPEAT III (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S5 OF REPEAT III (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S6 OF REPEAT III (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S1 OF REPEAT IV (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S2 OF REPEAT IV (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S3 OF REPEAT IV (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S4 OF REPEAT IV (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
CC S5 OF REPEAT IV (POTENTIAL).
CC EXTRACELLULAR (POTENTIAL).
CC S6 OF REPEAT IV (POTENTIAL).
CC CYTOPLASMIC (POTENTIAL).
FT DOMAIN 1706 2326

```

FT DOMAIN 1869 1873 POLY-GLN.
FT DOMAIN 2040 2046 BINDING TO THE BETA SUBUNIT (BY
FT DOMAIN 371 388 SIMILARITY).
FT SITE 306 306 CALCIUM ION SELECTIVITY AND PERMEABILITY
FT SITE 653 653 (BY SIMILARITY).
FT SITE 653 653 CALCIUM ION SELECTIVITY AND PERMEABILITY
FT SITE 1362 1362 (BY SIMILARITY).
FT SITE 1362 1362 CALCIUM ION SELECTIVITY AND PERMEABILITY
FT SITE 1650 1650 (BY SIMILARITY).
FT SITE 1650 1650 CALCIUM ION SELECTIVITY AND PERMEABILITY
FT MOD_RES 1716 1716 (BY SIMILARITY).
FT C_BIND 1734 1745 PHOSPHORYLATION (BY CAPK) (POTENTIAL).
FT VARSPPLIC 406 406 BY SIMILARITY.
FT 2) D -> DDGGLIITEPEKPEKDISVY (IN ISOFORM
FT CARBOHYD 271 271 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1558 1558 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT SEQUENCE 2326 AA; 264515 MW; D58DEMA09E819B6B CRC64;

Query Match 51.3%; Score 40; DB 1; Length 2326;
Best Local Similarity 60.08; Pred. No. 1.1e+02;
Matches 6; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 4 KPECKDKPRR 13
DB 838 QPESCEAPRR 847

RESULT 7
ID FBN2_MOUSE STANDARD; PRT: 2907 AA.
AC 061555; 063957;
DT 15-DEC-1998 (Rel. 37, Created)
DT 15-DEC-1998 (Rel. 37, Last sequence update)
DE FIBRILLIN 2 PRECURSOR.
GN FBN2 OR FBN-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN (1)
RP SEQUENCE FROM N.A.
RX MEDLINE: 95263670.
RA Zhang H., Hu W., Ramirez F.;
RT "Developmental expression of fibrillin genes suggests heterogeneity
of extracellular microfibrils."
RL J. Cell Biol. 129:1165-1176(1995).
RN [2]
RP SEQUENCE OF 210-317 FROM N.A.
RX MEDLINE: 94140368.
RA Li X., Pereira L., Zhang H., Sanguinetti C., Ramirez F., Bonadio J.,
RA Francke U.;
RT "Fibrillin genes map to regions of conserved mouse/human synteny on
mouse chromosomes 2 and 18."
RL Genomics 18:667-672(1993).
CC -1- FUNCTION: STRUCTURAL COMPONENT OF CONNECTIVE TISSUE MICROFIBRILS
THAT BINDS CALCIUM. FIBRILLIN-1-CONTAINING MICROFIBRILS PROVIDE
LONG-TERM FORCE BEARING STRUCTURAL SUPPORT.
CC -1- SIMILARITY: CONTAINS 43 CALCIUM-BINDING AND 4 NON-CALCIUM BINDING
EGF-LIKE DOMAINS.
CC -1- SIMILARITY: CONTAINS 7 TGF-BETA BINDING PROTEIN DOMAINS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation -
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
or send an email to license@isb-sib.ch).
CC EMBL, L39790; AAA74908.1; -

DR EMBL: S69359; AAC60685.1; -
DR MGD: MGI:95490; FBN2.
DR INTERPRO: IPR000152; -
DR INTERPRO: IPR000361; -
DR INTERPRO: IPR000822; -
DR INTERPRO: IPR001438; -
DR INTERPRO: IPR001881; -
DR INTERPRO: IPR002212; -
DR PFAM: PF00008; EGF_46.
DR PFAM: PF00683; TB_9.
DR PRINTS: PR00010; EGFBLD.
DR PROSITE: PS00010; ASX_HYDROXYL; 43.
DR PROSITE: PS00022; EGF_1; 2.
DR PROSITE: PS01186; EGF_2; 36.
DR PROSITE: PS01187; EGF_CA; 43.
KW Extracellular matrix; Calcium-binding; Glycoprotein; EGF-like domain;
KW Repeat; Signal; Multigene family.
FT SIGNAL 1 28
FT CHAIN 29 2907
FT FBN2_MOUSE 111 142
FT FBN2_MOUSE 145 176
FT FBN2_MOUSE 176 208
FT FBN2_MOUSE 276 317
FT FBN2_MOUSE 318 359
FT FBN2_MOUSE 360 426
FT FBN2_MOUSE 487 527
FT FBN2_MOUSE 528 567
FT FBN2_MOUSE 568 609
FT FBN2_MOUSE 610 650
FT FBN2_MOUSE 651 691
FT FBN2_MOUSE 692 760
FT FBN2_MOUSE 761 802
FT FBN2_MOUSE 803 844
FT FBN2_MOUSE 845 883
FT FBN2_MOUSE 948 989
FT FBN2_MOUSE 990 1065
FT FBN2_MOUSE 1066 1107
FT FBN2_MOUSE 1108 1150
FT FBN2_MOUSE 1151 1192
FT FBN2_MOUSE 1193 1234
FT FBN2_MOUSE 1235 1275
FT FBN2_MOUSE 1276 1317
FT FBN2_MOUSE 1318 1359
FT FBN2_MOUSE 1360 1400
FT FBN2_MOUSE 1401 1441
FT FBN2_MOUSE 1442 1483
FT FBN2_MOUSE 1484 1524
FT FBN2_MOUSE 1525 1565
FT FBN2_MOUSE 1566 1642
FT FBN2_MOUSE 1643 1684
FT FBN2_MOUSE 1685 1726
FT FBN2_MOUSE 1727 1800
FT FBN2_MOUSE 1801 1842
FT FBN2_MOUSE 1843 1884
FT FBN2_MOUSE 1885 1926
FT FBN2_MOUSE 1927 1965
FT FBN2_MOUSE 1966 2008
FT FBN2_MOUSE 2009 2048
FT FBN2_MOUSE 2049 2090
FT FBN2_MOUSE 2091 2163
FT FBN2_MOUSE 2164 2205
FT FBN2_MOUSE 2206 2245
FT FBN2_MOUSE 2246 2286
FT FBN2_MOUSE 2287 2330
FT FBN2_MOUSE 2331 2372
FT FBN2_MOUSE 2373 2441
FT FBN2_MOUSE 2442 2483
FT FBN2_MOUSE 2484 2524
FT FBN2_MOUSE 2525 2563
FT FBN2_MOUSE 2564 2606
FT FBN2_MOUSE 2607 2646
FT FBN2_MOUSE 2647 2687
FT FBN2_MOUSE 2688 2727
EGF-LIKE 1, NON-CALCIUM BINDING.
EGF-LIKE 2, NON-CALCIUM BINDING.
EGF-LIKE 3, NON-CALCIUM BINDING.
EGF-LIKE 4, CALCIUM-BINDING.
EGF-LIKE 5, CALCIUM-BINDING.
TGFBRP 1.
EGF-LIKE 6, NON-CALCIUM BINDING.
EGF-LIKE 7, CALCIUM-BINDING.
EGF-LIKE 8, CALCIUM-BINDING.
EGF-LIKE 9, CALCIUM-BINDING.
EGF-LIKE 10, CALCIUM-BINDING.
TGFBRP 2.
EGF-LIKE 11, CALCIUM-BINDING.
EGF-LIKE 12, CALCIUM-BINDING.
EGF-LIKE 13, CALCIUM-BINDING.
EGF-LIKE 14, CALCIUM-BINDING.
TGFBRP 3.
EGF-LIKE 15, CALCIUM-BINDING.
EGF-LIKE 16, CALCIUM-BINDING.
EGF-LIKE 17, CALCIUM-BINDING.
EGF-LIKE 18, CALCIUM-BINDING.
EGF-LIKE 19, CALCIUM-BINDING.
EGF-LIKE 20, CALCIUM-BINDING.
EGF-LIKE 21, CALCIUM-BINDING.
EGF-LIKE 22, CALCIUM-BINDING.
EGF-LIKE 23, CALCIUM-BINDING.
EGF-LIKE 24, CALCIUM-BINDING.
EGF-LIKE 25, CALCIUM-BINDING.
EGF-LIKE 26, CALCIUM-BINDING.
TGFBRP 4.
EGF-LIKE 27, CALCIUM-BINDING.
EGF-LIKE 28, CALCIUM-BINDING.
TGFBRP 5.
EGF-LIKE 29, CALCIUM-BINDING.
EGF-LIKE 30, CALCIUM-BINDING.
EGF-LIKE 31, CALCIUM-BINDING.
EGF-LIKE 32, CALCIUM-BINDING.
EGF-LIKE 33, CALCIUM-BINDING.
EGF-LIKE 34, CALCIUM-BINDING.
EGF-LIKE 35, CALCIUM-BINDING.
TGFBRP 6.
EGF-LIKE 36, CALCIUM-BINDING.
EGF-LIKE 37, CALCIUM-BINDING.
EGF-LIKE 38, CALCIUM-BINDING.
EGF-LIKE 39, CALCIUM-BINDING.
EGF-LIKE 40, CALCIUM-BINDING.
TGFBRP 7.
EGF-LIKE 41, CALCIUM-BINDING.
EGF-LIKE 42, CALCIUM-BINDING.
EGF-LIKE 43, CALCIUM-BINDING.
EGF-LIKE 44, CALCIUM-BINDING.
EGF-LIKE 45, CALCIUM-BINDING.
EGF-LIKE 46, CALCIUM-BINDING.
EGF-LIKE 47, CALCIUM-BINDING.

```

FT DISULFID 115 124 BY SIMILARITY.
FT DISULFID 119 130 BY SIMILARITY.
FT DISULFID 132 141 BY SIMILARITY.
FT DISULFID 149 159 BY SIMILARITY.
FT DISULFID 153 164 BY SIMILARITY.
FT DISULFID 166 175 BY SIMILARITY.
FT DISULFID 180 190 BY SIMILARITY.
FT DISULFID 184 196 BY SIMILARITY.
FT DISULFID 198 207 BY SIMILARITY.
FT DISULFID 280 292 BY SIMILARITY.
FT DISULFID 287 301 BY SIMILARITY.
FT DISULFID 303 316 BY SIMILARITY.
FT DISULFID 322 334 BY SIMILARITY.
FT DISULFID 329 343 BY SIMILARITY.
FT DISULFID 345 358 BY SIMILARITY.
FT DISULFID 491 503 BY SIMILARITY.
FT DISULFID 498 512 BY SIMILARITY.
FT DISULFID 514 526 BY SIMILARITY.
FT DISULFID 532 542 BY SIMILARITY.
FT DISULFID 537 551 BY SIMILARITY.
FT DISULFID 553 566 BY SIMILARITY.
FT DISULFID 572 584 BY SIMILARITY.
FT DISULFID 579 593 BY SIMILARITY.
FT DISULFID 595 608 BY SIMILARITY.
FT DISULFID 614 625 BY SIMILARITY.
FT DISULFID 620 634 BY SIMILARITY.
FT DISULFID 636 649 BY SIMILARITY.
FT DISULFID 655 666 BY SIMILARITY.
FT DISULFID 661 675 BY SIMILARITY.
FT DISULFID 677 690 BY SIMILARITY.
FT DISULFID 765 777 BY SIMILARITY.
FT DISULFID 772 786 BY SIMILARITY.
FT DISULFID 788 801 BY SIMILARITY.
FT DISULFID 807 819 BY SIMILARITY.
FT DISULFID 814 828 BY SIMILARITY.
FT DISULFID 830 843 BY SIMILARITY.
FT DISULFID 849 859 BY SIMILARITY.
FT DISULFID 854 868 BY SIMILARITY.
FT DISULFID 870 883 BY SIMILARITY.
FT DISULFID 952 964 BY SIMILARITY.
FT DISULFID 959 973 BY SIMILARITY.
FT DISULFID 975 988 BY SIMILARITY.
FT DISULFID 1070 1082 BY SIMILARITY.
FT DISULFID 1077 1091 BY SIMILARITY.
FT DISULFID 1093 1106 BY SIMILARITY.
FT DISULFID 1112 1124 BY SIMILARITY.
FT DISULFID 1119 1133 BY SIMILARITY.
FT DISULFID 1135 1149 BY SIMILARITY.
FT DISULFID 1155 1167 BY SIMILARITY.
FT DISULFID 1162 1176 BY SIMILARITY.
FT DISULFID 1178 1191 BY SIMILARITY.
FT DISULFID 1197 1209 BY SIMILARITY.
FT DISULFID 1204 1218 BY SIMILARITY.
FT DISULFID 1220 1233 BY SIMILARITY.
FT DISULFID 1239 1250 BY SIMILARITY.
FT DISULFID 1246 1259 BY SIMILARITY.
FT DISULFID 1261 1274 BY SIMILARITY.
FT DISULFID 1280 1292 BY SIMILARITY.
FT DISULFID 1287 1301 BY SIMILARITY.
FT DISULFID 1303 1316 BY SIMILARITY.
FT DISULFID 1322 1334 BY SIMILARITY.
FT DISULFID 1329 1343 BY SIMILARITY.
FT DISULFID 1345 1358 BY SIMILARITY.
FT DISULFID 1364 1377 BY SIMILARITY.
FT DISULFID 1371 1386 BY SIMILARITY.
FT DISULFID 1388 1399 BY SIMILARITY.
FT DISULFID 1405 1418 BY SIMILARITY.
FT DISULFID 1412 1427 BY SIMILARITY.
FT DISULFID 1429 1440 BY SIMILARITY.
FT DISULFID 1446 1458 BY SIMILARITY.
FT DISULFID 1453 1467 BY SIMILARITY.
FT DISULFID 1469 1482 BY SIMILARITY.
FT DISULFID 1488 1499 BY SIMILARITY.

```

```

FT DISULFID 1494 1508 BY SIMILARITY.
FT DISULFID 1510 1523 BY SIMILARITY.
FT DISULFID 1529 1540 BY SIMILARITY.
FT DISULFID 1535 1549 BY SIMILARITY.
FT DISULFID 1551 1564 BY SIMILARITY.
FT DISULFID 1647 1659 BY SIMILARITY.
FT DISULFID 1654 1668 BY SIMILARITY.
FT DISULFID 1670 1683 BY SIMILARITY.
FT DISULFID 1689 1701 BY SIMILARITY.
FT DISULFID 1696 1710 BY SIMILARITY.
FT DISULFID 1712 1725 BY SIMILARITY.
FT DISULFID 1805 1817 BY SIMILARITY.
FT DISULFID 1812 1826 BY SIMILARITY.

Query Match 51.3%; Score 40; DB 1; Length 2907;
Best Local Similarity 58.3%; Pred. No. 1.3e+02;
Matches 7; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

OY 1 CRTKPEKCDKVR 12
Db 2335 CRTKPGICEKVR 2346

RESULT 8
FBN2_HUMAN STANDARD; PRT; 2911 AA.
AC P35556;
DT 01-JUN-1994 (Rel. 29, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE FIBRILLIN 2 PRECURSOR.
GN FBN2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiinae; Homo.
[1]
RP SEQUENCE FROM N.A.
RA Zhang H., Apfelroth S.D., Hu W., Davis E.C., Sanguineti C.,
RA Bonadio J., Mecham R.P., Ramirez F.;
RT "Structure and expression of fibrillin-2, a novel microfibrillar
RT component preferentially located in elastic matrices."
RL J. Cell Biol. 124:855-863(1994).
RN [2]
RP SEQUENCE OF 752-1505 FROM N.A.
RX MEDLINE; 91304567.
RA Lee B., Godfrey M., Vitale E., Hori H., Mattei M.-G., Sarfarazi M.,
RA Tsipouras P., Ramirez F., Hollister D.;
RT "Linkage of Marfan syndrome and a phenotypically related disorder to
RT two different fibrillin genes."
RL Nature 352:330-334(1991).
RN [3]
RP VARIANTS CCA TYR-1252 AND SER-1433, AND VARIANT ILE-964.
RX MEDLINE; 96083599.
RA Putnam E.A., Zhang H., Ramirez F., Milewicz D.M.;
RT "Fibrillin-2 (FBN2) mutations result in the Marfan-like disorder,
RT congenital contractual arachnodactyly."
RL Nat. Genet. 11:456-458(1995).
CC -1- FUNCTION: STRUCTURAL COMPONENT OF CONNECTIVE TISSUE MICROFIBRILS
CC THAT BINDS CALCIUM. FIBRILLIN-2-CONTAINING MICROFIBRILS REGULATE
CC THE EARLY PROCESS OF ELASTIC FIBER ASSEMBLY.
CC -1- DISEASE: DEFECTS IN FBN2 ARE THE CAUSE OF CONGENITAL CONTRACTURAL
CC ARACHNOACTYLY (CCA) (ALSO KNOWN AS BEALS SYNDROME). CCA IS
CC PHENOTYPICALLY SIMILAR TO MARFAN SYNDROME, BUT DOES NOT EFFECT THE
CC AORTA AND THE EYES.
CC -1- SIMILARITY: CONTAINS 43 CALCIUM-BINDING AND 4 NON-CALCIUM BINDING
CC EGF-LIKE DOMAINS.
CC -1- SIMILARITY: CONTAINS 7 TGF-BETA BINDING PROTEIN DOMAINS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way

```


FT DISULFID 1411 1424 BY SIMILARITY.
FT DISULFID 1418 1433 BY SIMILARITY.
FT DISULFID 1435 1446 BY SIMILARITY.
FT DISULFID 1452 1464 BY SIMILARITY.
FT DISULFID 1459 1473 BY SIMILARITY.
FT DISULFID 1475 1488 BY SIMILARITY.

Query Match 51.3%; Score 40; DB 1; Length 2911;
Best Local Similarity 58.3%; Pred. No. 1.3e+02;
Matches 7; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

QY 1 CRTKPKCDKPR 12
Db 2341 CRTKPKCENGR 2352

RESULT 9
VEGF_CAVPO STANDARD; PRT; 164 AA.
AC P26617;
DT 01-AUG-1992 (Rel. 23, Created)
DT 01-AUG-1992 (Rel. 23, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
NC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
RN [1]
RP SEQUENCE FROM N.A.
RA Berse B.;
RL Submitted (XXX-1992) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
CC -----
CC EMBL; M84230; AAA37057.1; -
CC DR HSSP; P15692; 2YGH.
CC DR INTERPRO; IPR000072; -
CC DR PFAM; PF00341; PDGF_1;
CC DR PROSITE; PS00249; PDGF_1; 1.
CC DR PROSITE; PS0278; PDGF_2; 1.
CC KM Mitogen; Growth factor; Glycoprotein.
CC FT DISULFID 25 67 BY SIMILARITY.
CC FT DISULFID 56 101 BY SIMILARITY.
CC FT DISULFID 60 103 BY SIMILARITY.
CC FT DISULFID 50 50 INTERCHAIN (BY SIMILARITY).
CC FT DISULFID 59 59 INTERCHAIN (BY SIMILARITY).
CC FT CAROHD 74 74 N-LINKED (GLCNAC. . .) (POTENTIAL).
CC SQ SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5C4A CRC64;

Query Match 50.0%; Score 39; DB 1; Length 164;
Best Local Similarity 85.7%; Pred. No. 14;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 7 KCDKPR 13
Db 158 KCDKPR 164

RESULT 10
VEGF_BOVIN STANDARD; PRT; 190 AA.
AC P15691;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
NC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.
RP RP
RX MEDLINE; 90069608;
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic mitogen.";
RT Science 246:1306-1309(1989).
RN [2]
RP SEQUENCE OF 27-290 FROM N.A.
RX MEDLINE; 90121225;
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,
RA Lau K., Crisp T., Fiddes J.C., Abraham J.A.;
RT "Vascular endothelial growth factor: a new member of the platelet-derived growth factor gene family.";
RT Biochem. Biophys. Res. Commun. 165:1198-1206(1989).
RN [3]
RP SEQUENCE OF 27-31.
RX MEDLINE; 89286596;
RA Ferrara N., Henzel W.J.;
RT "Pituitary follicular cells secrete a novel heparin-binding growth factor specific for vascular endothelial cells.";
RT Biochem. Biophys. Res. Commun. 161:851-858(1989).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.
CC CC
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
CC -----
CC EMBL; M32976; AAA30502.1; -
CC DR EMBL; M31836; AAA30804.1; -
CC DR EMBL; M33750; AAA30805.1; -
CC DR PIR; A33255; A33255.
CC DR PIR; A33787; A33787.
CC DR PIR; B40080; B40080.
CC DR HSSP; P15692; 2YGH.
CC DR INTERPRO; IPR000072; -
CC DR PFAM; PF00341; PDGF_1;
CC DR PROSITE; PS00249; PDGF_1; 1.
CC DR PROSITE; PS0278; PDGF_2; 1.
CC KM Mitogen; Growth factor; Glycoprotein; Alternative splicing; signal.
CC FT SIGNAL 1 26
CC FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
CC FT DISULFID 51 93 BY SIMILARITY.
CC FT DISULFID 82 127 BY SIMILARITY.
CC FT DISULFID 86 129 BY SIMILARITY.
CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).

FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CAROHD 100 100 N-LINKED (GLCNC. . .) (POTENTIAL).
FT VARSPLC 139 183 MISSING (IN ISOFORM BETA).
FT VARSPLC 184 184 R -> K (IN ISOFORM BETA).
SQ SEQUENCE 190 AA: 22310 MW: EDBF903E46E24789 CRC64;

Query Match 50.0%; Score 39; DB 1; Length 190;
Best Local Similarity 85.7%; Pred. No. 16;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 7 KCDKPRR 13
Db 184 RCDKPRR 190

RESULT 11
VEGF_PIG STANDARD; PRT; 190 AA.

AC P49151:
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RX MEDLINE: 95143284.

RA Sharna H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;
RT "Nucleotide sequence and expression of the porcine vascular endothelial growth factor";
RL Biochim. Biophys. Acta 1260:235-238(1995).

CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY (BY SIMILARITY).
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).

CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).

CC EMBL: X81380; CAAS7143.1; .
DR HSSP: P15692; 2VGH.
DR INTERPRO: IPR000072; .
DR PIR: P00341; PDGF_1; 1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1 26 POTENTIAL.
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CAROHD 100 100 N-LINKED (GLCNC. . .) (POTENTIAL).
SQ SEQUENCE 190 AA: 22368 MW: 04D408BD7913047F CRC64;

Query Match

50.0%; Score 39; DB 1; Length 190;

Best Local Similarity 85.7%; Pred. No. 16;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 7 KCDKPRR 13
Db 184 RCDKPRR 190

RESULT 12
VEGF_RAT STANDARD; PRT; 190 AA.

AC P16612:
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-190.

RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,
RA Palisi T.N., Hope D.A., Thomas K.A.;
RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is homologous to platelet-derived growth factor";
RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).

CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).
CC -1- TISSUE SPECIFICITY: EXPRESSED IN THE PITUITARY, IN BRAIN, IN PARTICULARLY IN SUPRAOPTIC AND PARAVENTRICULAR NUCLEI AND THE CHOROID PLEXUS. ALSO FOUND ABUNDANTLY IN THE CORPUS LUTEUM OF THE OVARY AND IN KIDNEY GLOMERULI.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).

CC EMBL: M32167; AAA41211.1; .
DR PIR: A35987; A35987.
DR HSSP: P15692; 2VGH.
DR INTERPRO: IPR000072; .
DR PIR: P00341; PDGF_1; 1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1 26 VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT CHAIN 27 190 BY SIMILARITY.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CAROHD 100 100 N-LINKED (GLCNC. . .) (POTENTIAL).
SQ SEQUENCE 190 AA: 22396 MW: 589374010441F377 CRC64;

Query Match 50.0%; Score 39; DB 1; Length 190;
Best Local Similarity 85.7%; Pred. No. 16;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 7 KCDKPRR 13
Db 184 RCDKPRR 190

RESULT 13
VEGF_MOUSE STANDARD; PRT; 214 AA.

AC 000731;
DT 01-APR-1993 (Rel. 25, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
DE VEGF.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92274860.
RA Breier G., Albrecht U., Sterrer S., Risau W.;
RT "Expression of vascular endothelial growth factor during embryonic angiogenesis and endothelial cell differentiation.";
RL Development 114:521-532(1992).
RN [2]
RP SEQUENCE FROM N.A. (VEGF-1).
RX MEDLINE: 92355593.
RA Claffey K.P., Wilkison W.O., Spiegelman B.M.;
RT "Vascular endothelial growth factor. Regulation by cell differentiation and activated second messenger pathways.";
RL J. Biol. Chem. 267:16317-16322(1992).
RN [3]
RP SEQUENCE OF 1-3 FROM N.A.
RX MEDLINE: 96216498.
RA Shima D.T., Kuroki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.;
RT "The mouse gene for vascular endothelial growth factor. Genomic structure, definition of the transcriptional unit, and characterization of transcriptional and post-transcriptional regulatory sequences.";
RL J. Biol. Chem. 271:3877-3883(1996).
CC - FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.
CC - SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC - SUBCELLULAR LOCATION: VEGF-1 AND VEGF-2 ARE SECRETED WHILE VEGF-3 REMAINS CELL-SURFACE ASSOCIATED UNLESS RELEASED BY HEPARIN.
CC - ALTERNATIVE PRODUCTS: THREE FORMS (VEGF-1, VEGF-2 AND VEGF-3) ARE PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME GENE. THE LONGEST FORM (VEGF-3, SHOWN HERE) CONTAINS A BASIC INSERT LINKED TO CELL-ASSOCIATION/HEPARIN-BINDING.
CC - TISSUE SPECIFICITY: IN DEVELOPING EMBRYOS, EXPRESSED MAINLY IN THE CHOROID PLEXUS, PARAVENTRICULAR NEUROEPITHELIUM, PLACENTA AND KIDNEY GLOMERULI. ALSO FOUND IN BRONCHIAL EPITHELIUM, ADRENAL GLAND AND IN SEMINIFEROUS TUBULES OF TESTIS. HIGH EXPRESSION OF VEGF CONTINUOUS IN KIDNEY GLOMERULI AND CHOROID PLEXUS IN ADULTS.
CC - SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see <http://www.isb-sdb.ch/announce/> or send an email to license@isb-sdb.ch).
CC
CC EMBL: S37052; AAB22252.1;
CC EMBL: S38083; AAB22253.1;
CC EMBL: S38100; AAB22254.1;
CC EMBL: M95200; AAA40547.1;
CC EMBL: U41383; CAB35545.1;
CC PIR: A43351; A43351.

DR HSP: P15692; 2VGH.
DR WGD: WGI:103178; VEGF.
DR INTERPRO: IPR000072; -
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS00278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT SIGNAL
FT CHAIN 1; 26
FT DISULFID 27; 214
FT DISULFID 51; 93
FT DISULFID 82; 127
FT DISULFID 86; 129
FT DISULFID 76; 76
FT DISULFID 85; 85
FT CARBOHD 100; 100
FT CARSPIC 140; 140
FT VARSPLIC 141; 164
FT VARSPLIC 141; 208
FT CONFLICT 117; 118
SQ SEQUENCE 214 AA; 25283 MW; B5540B51A4BB6E17 CAC64;
GE -> ER (IN REF. 2).

Query Match 50.0%; Score 39; DB 1; Length 214;
Best Local Similarity 85.7%; Pred. No. 18;
Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 7 KCDKPRR 13
Db 208 RCDKPRR 214

RESULT 14
VEGF_HUMAN STANDARD; PRT; 215 AA.

ID VEGF_HUMAN
AC P15692;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF OR VEGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 90069608.
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic mitogen.";
RL Science 246:1306-1309(1989).
RN [2]
RP SEQUENCE FROM N.A. AND PARTIAL SEQUENCE.
RX MEDLINE: 90069609.
RA Keck P.J., Hauser S.D., Krivi G., Sanzo K., Warren T., Feder J., Connolly D.T.;
RT "Vascular permeability factor, an endothelial cell mitogen related to PDGF.";
RL Science 246:1306-1312(1989).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE: 91268072.
RA Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D., Fides J.C., Abraham J.A.;
RT "The human gene for vascular endothelial growth factor. Multiple protein forms are encoded through alternative exon splicing.";
RL J. Biol. Chem. 266:11947-11954(1991).
RN [4]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92231879.
RA Weindel K., Marne D., Welch H.A.;
RT "Aids-associated Kaposi's sarcoma cells in culture express vascular endothelial growth factor.";

RL Biochem. Biophys. Res. Commun. 183:1167-1174(1992).
 RN [5]
 RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.
 RX MEDLINE; 90062112.
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monseil R.,
 Siegel N., Haymore B.L., Leininger R., Feder J.;
 RT "Human vascular permeability factor. Isolation from U937 cells.";
 RJ J. Biol. Chem. 264:20017-20024(1989).
 RN [6]
 RP SEQUENCE OF 27-41.
 RX MEDLINE; 93145946.
 RA Flebich B.L., Jaeger B., Schoellmann C., Weindel K., Witting J.,
 Kochs G., Marne D., Hug H., Welch H.A.;
 RT "Synthesis and assembly of functionally active human vascular
 endothelial growth factor homodimers in insect cells.";
 RJ Eur. J. Biochem. 211:19-26(1993).
 RN [7]
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.
 RX MEDLINE; 97352774.
 RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,
 de Vos A.M.;
 RT "Vascular endothelial growth factor: crystal structure and functional
 mapping of the kinase domain receptor binding site.";
 RJ Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).
 RN [8]
 RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.
 RX MEDLINE; 98035455.
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;
 RT "The crystal structure of vascular endothelial growth factor (VEGF)
 refined to 1.93-A resolution: multiple copy flexibility and receptor
 binding.";
 RJ structure 5:1325-1338(1997).
 RN [9]
 RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.
 RX MEDLINE; 99119204.
 RA Fleiseman C., Christinger H.W., Cochran A.G., Cunningham B.C.,
 Fairbrother W.J., Keenan C.J., Meng C.J., de Vos A.M.;
 RT "Crystal structure of the complex between VEGF and a receptor-blocking
 peptide.";
 RJ Biochemistry 37:17765-17772(1998).
 RN [10]
 RP STRUCTURE BY NMR OF 34-135.
 RX MEDLINE; 97477915.
 RA Fairbrother W.J., Champagne M.A., Christinger H.W., Keyt B.A.,
 Starovasnik M.A.;
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the
 receptor-binding domain of vascular endothelial growth factor.";
 RJ Protein Sci. 6:2250-2260(1997).
 RN [11]
 RP STRUCTURE BY NMR OF 137-215.
 RX MEDLINE; 98298440.
 RA Fairbrother W.J., Champagne M.A., Christinger H.W., Keyt B.A.,
 Starovasnik M.A.;
 RT "Solution structure of the heparin-binding domain of vascular
 endothelial growth factor.";
 RJ Structure 6:637-648(1998).
 CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 PERMEABILITY.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: FOUR FORMS OF VEGF ARE PRODUCED BY
 ALTERNATIVE SPLICING OF THE SAME GENE (VEGF-121, VEGF-165,
 VEGF-189 AND VEGF-215).
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 between the Swiss Institute of Bioinformatics and the EMBL outstation -
 the European Bioinformatics Institute. There are no restrictions on its
 use by non-profit institutions as long as its content is in no way
 modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (see <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 CC EMBL; M32977; AAA35789.1; -;
 DR EMBL; M27281; AAA36807.1; -;
 DR EMBL; M63978; AAA36804.1; -;
 DR EMBL; M63971; AAA36804.1; JOINED.
 DR EMBL; M63972; AAA36804.1; JOINED.
 DR EMBL; M63973; AAA36804.1; JOINED.
 DR EMBL; M63974; AAA36804.1; JOINED.
 DR EMBL; M63975; AAA36804.1; JOINED.
 DR EMBL; M63976; AAA36804.1; JOINED.
 DR EMBL; M63977; AAA36804.1; JOINED.
 DR EMBL; X62568; CAA44447.1; -;
 DR PIR; A34492; A34492.
 DR PIR; A40079; A40079.
 DR PIR; A40080; A40080.
 DR PIR; A40454; A40454.
 DR PIR; B40454; B40454.
 DR PIR; C40454; C40454.
 DR PIR; J01463; J01463.
 DR PIR; J01464; J01464.
 DR PIR; S17348; S17348.
 DR PDB; 1VGH; 08-APR-98.
 DR PDB; 2VGH; 08-APR-98.
 DR PDB; 1VPE; 08-APR-98.
 DR PDB; 2VPE; 29-JUL-98.
 DR PDB; 1VPE; 23-FEB-99.
 DR MIM; 192240; -;
 DR INTERPRO; IPR000072; -;
 DR PRAM; PF00341; PDGF_1; 1.
 DR PROSITE; PS00249; PDGF_1; 1.
 DR PROSITE; PS0273; PDGF_2; 1.
 DR Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal;
 KW 3D-structure. 1;
 FT SIGNAL 1 26
 FT CHAIN 27 215
 FT DISULFID 52 94
 FT DISULFID 83 128
 FT DISULFID 87 130
 FT DISULFID 77 77
 FT DISULFID 86 86
 FT CARBOHYD 101 101
 FT VARSPPLIC 141 141
 FT VARSPPLIC 142 165
 FT VARSPPLIC 142 209
 SQ SEQUENCE 215 AA; 25173 MW; 7B9759AD5871FF33 CRC64;
 Query Match 50.0%; Score 39; DB 1; Length 215;
 Best Local Similarity 85.7%; Pred. No. 18;
 Matches 6; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
 QY 7 KCDKPRR 13
 DB 209 KCDKPRR 215;
 RESULT 15
 ENL_HUMAN STANDARD; PRT; 559 AA.
 ID ENL_HUMAN
 AC Q03111;
 DT 01-FEB-1994 (Rel. 28, Created)
 DT 01-FEB-1994 (Rel. 28, Last sequence update)
 DT 01-OCT-1996 (Rel. 34, Last annotation update)
 DE ENL. PROTEIN.
 GN ENL.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Hominoidea; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:39:32 : Search time 106.63 Seconds
(without alignments)
11.384 Million cell updates/sec

Title: US-09-266-543-3

Perfect score: 78
Sequence: 1 CRTKPEKCDKPRR 13

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues

Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: SP-archaea:*
2: SP-bacteria:*
3: SP-fungi:*
4: SP-human:*
5: SP_invertebrate:*
6: SP_mammal:*
7: SP_mhc:*
8: SP_organelle:*
9: SP-phage:*
10: SP-plant:*
11: SP-rodent:*
12: SP-virus:*
13: SP-vertebrate:*
14: SP_unclassified:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	69	88.5	146	11	Q9XG6
2	53	67.9	147	4	Q9UH58
3	50	64.1	148	13	Q42571
4	43	55.1	102	3	Q94005
5	43	55.1	1579	5	Q9V4S1
6	41	52.6	139	10	Q39787
7	41	52.6	139	10	Q39795
8	41	52.6	144	13	Q73822
9	41	52.6	402	5	Q9VDO4
10	41	52.6	1080	2	Q84688
11	40	51.3	216	2	Q9R3N0
12	40	51.3	216	9	Q80201
13	40	51.3	252	5	Q9V9F1
14	40	51.3	403	10	Q9SG14
15	40	51.3	417	10	Q9SS14
16	40	51.3	495	5	Q9V9F2
17	40	51.3	588	5	Q45032
18	40	51.3	603	5	Q76132
19	40	51.3	786	5	Q76133

Result No.	Score	Query Match	Length	DB ID	Description
20	40	51.3	2906	11	Q9WUH9
21	39	50.0	102	6	Q9XT61
22	39	50.0	102	11	Q63672
23	39	50.0	110	11	Q88911
24	39	50.0	131	10	Q9SLK1
25	39	50.0	190	6	Q38844
26	39	50.0	190	6	Q77643
27	39	50.0	190	6	Q9XSF3
28	39	50.0	191	11	Q9OX39
29	39	50.0	191	4	Q75875
30	39	50.0	208	6	Q9XSF4
31	39	50.0	209	4	Q60720
32	39	50.0	214	6	Q9XSF5
33	39	50.0	214	11	Q9OXG7
34	39	50.0	223	10	Q9XSG2
35	39	50.0	254	4	Q16889
36	39	50.0	376	2	Q9Z653
37	39	50.0	442	10	Q04621
38	39	50.0	559	4	Q14768
39	39	50.0	662	5	Q21536
40	39	50.0	715	5	Q94494
41	39	50.0	1124	13	Q12983
42	39	50.0	1296	5	Q22452
43	39	50.0	1391	5	Q19021
44	39	50.0	1502	3	Q06574
45	39	50.0	2813	6	Q28311

ALIGNMENTS

RESULT 1

ID	Q9XG6	PRELIMINARY	PRT	146 AA
AC	Q9XG6			
DT	01-MAY-2000 (TREMBLrel. 13, Created)			
DT	01-MAY-2000 (TREMBLrel. 13, last sequence update)			
DT	01-JUN-2000 (TREMBLrel. 14, last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR-A120.			
OS	Rattus norvegicus (Rat).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.			
RP	SEQUENCE FROM N.A.			
RA	Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;			
RT	"Developmental expression of vascular endothelial growth factor-A			
RT	(VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat			
RT	muscle."			
RT	Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.			
RL	EMBL: AF215726; AAF19212.1; -			
DR	INTERPRO: IPR003072; -			
DR	PFAM: PF00341; PDGF; 1.			
DR	PROSITE: PS00249; PDGF; 1.			
SQ	SEQUENCE 146 AA; 17161 MW; AF92979C38EF532A CRC64;			

Query Match 88.5%; Score 69; DB 11; Length 146;
Best local Similarity 100.0%; Pred. No. 0.0002;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 135 RTKPEKCDKPRR 146

QY 2 RTKPEKCDKPRR 13
|||||

RESULT 2

ID	Q9UH58	PRELIMINARY	PRT	147 AA
AC	Q9UH58			
DT	01-MAY-2000 (TREMBLrel. 13, Created)			
DT	01-MAY-2000 (TREMBLrel. 13, last sequence update)			
DT	01-JUN-2000 (TREMBLrel. 14, last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR ISOFORM 121 PRECURSOR.			

```

OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euteria; Primates; Catarrhini; Hominoidea; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RA Sato J.D., Whitney R.G.;
RT "Human cDNA for vascular endothelial growth factor isoform VEGF121."
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF214570; AAF19659.1; -
DR INTERPRO: IPR000072; -
DR PIRAM: PF00341; PDGF: 1.
DR PROSITE: PS00249; PDGF: 1.
DR SIGNAL.
FW SIGNAL.
SQ SEQUENCE 147 AA; 17219 MW; DDF4D6994249BED6 CRC64;

Query Match
Best Local Similarity 67.9%; Score 53; DB 4; Length 147;
Matches 9; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTKPEKCDKPRR 13
DB 136 RARQEKCDKPRR 147

RESULT 3
ID 042571 PRELIMINARY; PRT; 148 AA.
AC 042571;
DT 01-JAN-1998 (TREMBLrel. 05, Created)
DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 122.
GN VEGF.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipiloidea; Pipidae;
OC Xenopodinae; Xenopus.
RN [1]
RP SEQUENCE FROM N.A.
RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;
RL Submitted (JUN-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF008593; AAB63679.1; -
DR HSSP: P15692; IVP.
DR INTERPRO: IPR000072; -
DR PIRAM: PF00341; PDGF: 1.
DR PROSITE: PS00249; PDGF: 1.
DR PRODOM: PD001629; -; 1.
SQ SEQUENCE 148 AA; 17234 MW; 4AD153CA2F8B1E95 CRC64;

Query Match
Best Local Similarity 64.1%; Score 50; DB 13; Length 148;
Matches 8; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

OY 2 RTKPEKCDKPRR 13
DB 137 KSKQEKCDKPRR 148

RESULT 4
ID 094005 PRELIMINARY; PRT; 102 AA.
AC 094005;
DT 01-MAY-1999 (TREMBLrel. 10, Created)
DT 01-MAY-1999 (TREMBLrel. 10, Last sequence update)
DT 01-MAY-1999 (TREMBLrel. 10, Last annotation update)
DE QUESTIONABLE ORF.
GN CA20C1.18C.
OS Candida albicans (Yeast).
OC Eukaryota; Fungi; Ascomycota; Saccharomycetes; Saccharomycetales;
OC anamorphic Saccharomycetales; Candida.

```

```

RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=1161;
RA Oliver K., Harris D.;
RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=1161;
RA Barrell B.G., Rajandream M.A.;
RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.
RN [3]
RP SEQUENCE FROM N.A.
RC STRAIN=1161;
RX MEDLINE: 9743554.
RA Tait E., Simon M.C., King S., Brown A.J., Gow N.A.R., Shaw D.J.;
RT "A Candida albicans genome project: cosmid contigs, physical mapping,
RT and gene isolation."
RL Fungal Genet. Biol. 21:308-314(1997).
DR EMBL: AF033391; CAA21939.1; -
SQ SEQUENCE 102 AA; 11151 MW; 53F29CF740CC3D0F CRC64;

Query Match
Best Local Similarity 55.1%; Score 43; DB 3; Length 102;
Matches 7; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CRTKPEKCD 9
DB 89 CETKPEKCD 97

RESULT 5
ID 09V4S1 PRELIMINARY; PRT; 1579 AA.
AC 09V4S1;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE CG2149.
GN CG2149.
OS Drosophila melanogaster (Fruit fly).
OC Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
OC Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
OC Ephydroidea; Drosophilidae; Drosophila.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=BERKELEY;
RX MEDLINE: 20196006.
RA Adams M.D., Celisner S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galie R.F.,
RA Adams M.D., Celisner S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhattacharya D., Bolshakov S.,
RA Borokova D., Botchan M.R., Bouck J., Brokstein P., Brotlier P.,
RA Burdick K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablo J.M., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Fertler S., Fleischmann W.,
RA Foster C., Gabriellian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Glodex A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ipeigwan C.,
RA Jalali M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
RA Kimmel B.E., Kocira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Liu X., Mattei E., McIntosh T.C., McLeod M.P., McPherson D.,
RA Merkulov G., Mishina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,

```

RA Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
 RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
 RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
 RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,
 RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,
 RA Swirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,
 RA Wang Z.-Y., Wasserman D.A., Weinstein G.M., Weisenbach J.,
 RA Williams S.M., Woodman T., Worley K.C., Wu D., Yang S., Yao Q.A.,
 RA Ye J., Yeh R.F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,
 RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O.,
 RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;
 RT "The genome sequence of *Drosophila melanogaster*.";
 RL EMBL: AE003837; AAF59104.1; -;
 DR FLXBASE: FB9N0033284; CG2149;
 SQ SEQUENCE 1579 AA; 180937 MW; 105057D948C295E1 CRC64;

Query Match 55.1%; Score 43; DB 5; Length 1579;
 Best Local Similarity 70.0%; Pred. No. 34;
 Matches 7; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 4 KPEKCDKRR 13
 Db 427 RPKCKRR 436

RESULT 6
 ID Q39787 PRELIMINARY; PRT; 139 AA.
 AC Q39787;
 DT 01-NOV-1996 (T-EMBLrel. 01, Created)
 DT 01-NOV-1996 (T-EMBLrel. 01, Last sequence update)
 DT 01-MAY-2000 (T-EMBLrel. 13, Last annotation update)
 DE 2S ALBUMIN STORAGE PROTEIN PRECURSOR.
 GN MAT5-D.
 OS *Gossypium hirsutum* (Upland cotton).
 OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
 OC Magnoliophyta; eudicotyledons; Rosidae; eurosids II; Malvales;
 OC Malvaceae; Gossypium.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Galau G.A., Wang H.Y.C., Hughes D.W.;
 RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.
 DR EMBL: M83301; AAA33048.1;
 DR MENDEL: 14688; Goshl: 2374; 14688.
 DR INTERPRO: IPR001768; -;
 DR PFM: PF00234; tryp_alpha_amy1; 1.
 KM Signal.
 FT SIGNAL 1 20 POTENTIAL.
 FT CHAIN 33 59 2S ALBUMIN STORAGE PROTEIN.
 FT CHAIN 64 139 2S ALBUMIN STORAGE PROTEIN.
 SQ SEQUENCE 139 AA; 15831 MW; 43ACF35FE97D19B4 CRC64;

Query Match 52.6%; Score 41; DB 10; Length 139;
 Best Local Similarity 46.2%; Pred. No. 9;
 Matches 6; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

OY 1 CRTPEKCDKRR 13
 Db 124 CEMEGRCRTPSR 136

RESULT 7
 ID Q39795 PRELIMINARY; PRT; 139 AA.
 AC Q39795;
 DT 01-NOV-1996 (T-EMBLrel. 01, Created)
 DT 01-NOV-1996 (T-EMBLrel. 01, Last sequence update)
 DT 01-MAY-2000 (T-EMBLrel. 13, Last annotation update)
 DE 2S ALBUMIN STORAGE PROTEIN PRECURSOR.
 GN MAT5-A.

OS *Gossypium hirsutum* (Upland cotton).
 OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
 OC Magnoliophyta; eudicotyledons; Rosidae; eurosids II; Malvales;
 OC Malvaceae; *Gossypium*.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Galau G.A., Wang H.Y.C., Hughes D.W.;
 RL Submitted (JAN-1992) to the EMBL/GenBank/DBJ databases.
 DR EMBL: M86213; AAA33066.1;
 DR MENDEL: 8406; Goshl: 2374; 8406.
 DR INTERPRO: IPR001768; -;
 DR PFM: PF00234; tryp_alpha_amy1; 1.
 KM Signal.
 FT SIGNAL 1 20 POTENTIAL.
 FT CHAIN 33 59 2S ALBUMIN STORAGE PROTEIN.
 FT CHAIN 64 139 2S ALBUMIN STORAGE PROTEIN.
 SQ SEQUENCE 139 AA; 15700 MW; 02ACE24FFEC9EF90 CRC64;

Query Match 52.6%; Score 41; DB 10; Length 139;
 Best Local Similarity 46.2%; Pred. No. 9;
 Matches 6; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

OY 1 CRTPEKCDKRR 13
 Db 124 CEMEGRCRTPSR 136

RESULT 8
 ID 073822 PRELIMINARY; PRT; 144 AA.
 AC 073822;
 DT 01-AUG-1998 (T-EMBLrel. 07, Created)
 DT 01-AUG-1998 (T-EMBLrel. 07, Last sequence update)
 DT 01-JUN-2000 (T-EMBLrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR 121 ISOFORM.
 GN VEGF.
 OS *Brachydanio rerio* (Zebrafish) (*Danio rerio*).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
 OC Cypriniformes; Cyprinidae; Cyprinidae; Rasbora; Danio.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Liang D., Ge R.;
 RL Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AF059661; AAC14713.1; -;
 DR HSSP: P15692; IVPF.
 DR INTERPRO: IPR000072; -;
 DR PFM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 DR PRODOM: PD001629; -; 1.
 SQ SEQUENCE 144 AA; 16479 MW; 303B6A7407AA0832 CRC64;

Query Match 52.6%; Score 41; DB 13; Length 144;
 Best Local Similarity 54.5%; Pred. No. 9.3;
 Matches 6; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

OY 2 RTPEKCDKRR 12
 Db 134 KAKKRCCKPR 144

RESULT 9
 ID Q9VD04 PRELIMINARY; PRT; 402 AA.
 AC Q9VD04;
 DT 01-MAY-2000 (T-EMBLrel. 13, Created)
 DT 01-MAY-2000 (T-EMBLrel. 13, Last sequence update)
 DT 01-JUN-2000 (T-EMBLrel. 14, Last annotation update)
 DE CG4413 PROTEIN.
 GN CG4413.
 OS *Drosophila melanogaster* (Fruit fly).

```

CC Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
OC Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
CC Ephydroidea; Drosophilidae; Drosophila.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-BERKELEY;
RX MEDLINE; 20196006.
RA Adams M.D., Celisner S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galie R.F.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Brandon R.C., Rogers Y.-H.C., Blazer R.G., Champe M., Pfeiffer B.D.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abil J.F., Agbayani A., An H.-J., Andrews-Pfannkuch C., Baldwin D.,
RA Baller R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Borikova D., Botchan M.R., Bouck J., Brokstein P., Brothier P.,
RA Butlis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cavley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Ferreira S., Fleischmann W.,
RA Foster C., Gabriellian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Glodex A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Jaitai M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Klip D., Lai Z.,
RA Lasko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Liu X., Mattel B., McIntosh T.C., McLeod M.P., Mopsherson D.,
RA Melnikov G., Mishina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,
RA Nelson D.R., Nelson K.A., Nixon K., Nuskern D.R., Pacleb J.M.,
RA Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,
RA Spier E., Spradling A.C., Stapleton M., Strong R., Sun E.,
RA Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,
RA Wang Z.-Y., Wasserman D.A., Weinstock G.M., Weissbach J.,
RA Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
RA Ye J., Yeh R.-F., Zaveri J.S., Zhan K., Zhu D., Zhang S., Zhao Q., Zheng L.,
RA Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu H.O.,
RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;
RT "The genome sequence of Drosophila melanogaster.";
RL Science 287:2185-2195(2000).
DR EMBL; AEO03728; AAF55736.1; -
DR FLYBASE; FBgn0038767; CG4413.
DR INTERPRO; IPR000822; -
DR PRAM; PF00096; z1-C2H2; 3.
DR PROSITE; PS00028; ZINC_FINGER_C2H2; 3.
SQ SEQUENCE 402 AA; 45857 MW; 6B1DD6A353830A CRC64;

```

Query Match 52.6%; Score 41; DB 5; Length 402;
 Best Local Similarity 70.0%; Pred. No. 23;
 Matches 7; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

```

OY 4 KPECKDRR 13
    |||||:
Db 233 KPECKDRSGR 242

```

RESULT 10
 ID 084688 PRELIMINARY; PRT; 1080 AA.
 AC 084688;
 DT 01-NOV-1998 (TrEMBLrel. 08, Created)
 DT 01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
 DE 01-MAY-2000 (TrEMBLrel. 13, Last annotation update)
 DE PPP2-TRANSGLYCOLASE/TRANSEPTIDASE.
 GN pppb.
 OS Chlamydia trachomatis.
 RA Bacteria; Chlamydiales; Chlamydiaceae; Chlamydia.

```

RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=D/OW-3/CX;
RX MEDLINE; 99000809.
RA Stephens R.S., Kalman S., Lammel C.J., Fan J., Marathe R., Aravind L.,
RA Mitchell W.P., Olinger L., Tatunov R.L., Zhao Q., Koonin E.V.,
RA Davis R.W.;
RT "Genome sequence of an obligate intracellular pathogen of humans:
RT Chlamydia trachomatis.";
RL Science 282:754-759(1998).
DR EMBL; AEO01338; AAC68277.1; -
DR INTERPRO; IPR004460; -
DR PRAM; PF00905; Transseptidase; 1.
SQ SEQUENCE 1080 AA; 123959 MW; EB647FA87F1FEED CRC64;

```

Query Match 52.6%; Score 41; DB 2; Length 1080;
 Best Local Similarity 60.0%; Pred. No. 53;
 Matches 6; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

```

OY 1 CRKPEKCDK 10
    ||: |||
Db 53 CRVPEHCGR 62

```

RESULT 11
 ID 09R3NO PRELIMINARY; PRT; 216 AA.
 AC 09R3NO;
 DT 01-MAY-2000 (TrEMBLrel. 13, Created)
 DT 01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
 DE 01-MAY-2000 (TrEMBLrel. 13, Last annotation update)
 DE ORF49 PROTEIN.
 OS Escherichia coli.
 OC Bacteria; Proteobacteria; gamma subdivision; Enterobacteriaceae;
 CC Escherichia.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Tobe T., Hayashi T., Han C.G., Schoolnik G.K., Ohtsubo E.,
 RA Sasakawa C.;
 RT "Complete DNA sequence and structural analysis of the enteropathogenic
 RT Escherichia coli adherence factor plasmid.";
 RL Infect. Immun. 67:5455-5462(1999).
 DR EMBL; AB024946; BAA84884.1; -
 DR EMBL; AB024946; BAA84884.1; -
 KW Plasmid.
 SQ SEQUENCE 216 AA; 24221 MW; 5B11DD0EB56EDFE CRC64;

Query Match 51.3%; Score 40; DB 2; Length 216;
 Best Local Similarity 63.6%; Pred. No. 19;
 Matches 7; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

```

OY 3 TKEPKDRR 13
    |||: |||
Db 84 TQPKAKRRR 94

```

RESULT 12
 ID 080201 PRELIMINARY; PRT; 216 AA.
 AC 080201;
 DT 01-NOV-1998 (TrEMBLrel. 08, Created)
 DT 01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
 DE HYPOTHETICAL 25.3 KDA PROTEIN.
 OS Methylobacterium phage psiW2.
 OC viruses; dsDNA viruses, no RNA stage; Tailed phages; Siphoviridae.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Pfister P., Wasserfallen A., Stettler R., Leisinger T.;
 RT "Archaeophage PsiW2 complete genomic DNA.";

RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF065411; AAC27050.1; -
KW Hypothetical Protein.
SQ SEQUENCE 216 AA; 25280 MM; F0C52F7C704B6C2F CRC64;

Query Match 51.3%; Score 40; DB 9; Length 216;
Best Local Similarity 53.8%; Pred. No. 19;
Matches 7; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

QY 1 CRTPEKCDKPRR 13
DB 162 CRCPECDENGR 174

RESULT 13
ID Q9V9F1 PRELIMINARY; PRT; 252 AA.
AC Q9V9F1;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-MAY-2000 (TREMBLrel. 13, Last annotation update)
DE CG2682 PROTEIN.
GN CG2682.
OS Drosophila melanogaster (Fruit fly).
OC Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
OC Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
OC Ephydroidea; Drosophilidae; Drosophila.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-BERKELEY;
RX MEDLINE: 20196006.
RA Adams M.D., Celiker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Amaratilake P.G., Scherer S.E., Li P.W., Hoskins R.A., Galie R.F.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Brandon R.C., Rogers Y.-H.C., Blazer R.G., Champagne M., Pfeiffer B.D.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abell J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.T., Benos P.V., Bernan B.P., Bhandari D., Bolshakov S.,
RA Borokova D., Botchan M.R., Bouck J., Brokstein P., Brotler P.,
RA Burlis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cavley S., Dahlke C., Davenport L.B., Davies P.,
RA de Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Durbin K.J., Evangelista C.C., Ferraz C., Ferriere S., Fleischmann W.,
RA Foster C., Gabrielian A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegyan C.,
RA Jaitai M., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Laoko P., Lei Y., Levitsky A.A., Li J., Li Z., Liang Y., Lin X.,
RA Liu X., Mattei B., McIntosh T.C., McLeod M.P., McPherson D.,
RA Mekulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,
RA Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Paule J.M.,
RA Palazolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
RA Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Shue B.C., Siden-Kiamos I., Simpson M.D., Skupski M.P., Smith T.,
RA Spler E., Spreading A.C., Stapleton M., Strong R., Sun E.,
RA Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,
RA Wang Z.-Y., Wasserman D.A., Weinstock G.M., Weissbach J.,
RA Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
RA Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L.,
RA Zhang X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O.,
RA Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.;
RT "The genome sequence of Drosophila melanogaster."
RL Science 287:2185-2195(2000).
DR EMBL: AE003787; AAF57340.1; -
DR FLXBASE: FBgn0033015; CG2682.
SQ SEQUENCE 252 AA; 29409 MM; 5427B96DA63B4929 CRC64;

Query Match 51.3%; Score 40; DB 5; Length 252;
Best Local Similarity 58.3%; Pred. No. 22;
Matches 7; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 2 RTPEKCDKPRR 13
DB 211 RGRKRCRPRR 222

RESULT 14
ID Q9SG14 PRELIMINARY; PRT; 403 AA.
AC Q9SG14;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-MAY-2000 (TREMBLrel. 13, Last annotation update)
DE T18K17.20 PROTEIN.
GN T18K17.20.
OS Arabidopsis thaliana (Mouse-ear cress).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids II; Brassicales;
OC Brassicaceae; Arabidopsis.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-CV. COLUMBIA.
RA Lin X., Kaul S., Town C.D., Benito M., Creasy T.H., Haas B.,
RA Bowman C.M., Koo H., Fujii C.Y., Utterback T.R., Barnstead M.E.,
RA Roman G.L., White O., Nierman W.C., Fraser C.M.;
RT "Arabidopsis thaliana chromosome I BAC T18K17 genomic sequence."
RL Submitted (JAN-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL: AC010556; AAF18721.1; -
SQ SEQUENCE 403 AA; 47403 MM; DDCCD9364C4A789f6 CRC64;

Query Match 51.3%; Score 40; DB 10; Length 403;
Best Local Similarity 63.6%; Pred. No. 33;
Matches 7; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 2 RTPEKCDKPRR 12
DB 102 RWPSSCDLPR 112

RESULT 15
ID Q9SSL4 PRELIMINARY; PRT; 417 AA.
AC Q9SSL4;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-MAY-2000 (TREMBLrel. 13, Last annotation update)
DE F3N23.34 PROTEIN.
GN F3N23.34.
OS Arabidopsis thaliana (Mouse-ear cress).
OC Eukaryota; Viridiplantae; Embryophyta; Tracheophyta; Spermatophyta;
OC Magnoliophyta; eudicotyledons; Rosidae; eurosids II; Brassicales;
OC Brassicaceae; Arabidopsis.
RN [1]
RP SEQUENCE FROM N.A.
RC Federespiel N.A., Palm C.J., Conway A.B., Conn L., Hansen N.F.,
RA Alattfi H., Araujo R., Huizar L., Rowley D., Chen S., Hartman P.,
RA Hicks R., Huerta M., Mason S., Siepel J., Zimmerman M., Buehler E.,
RA Dunn P., Gonzalez A., Kremetska I., Kim C., Lenz C., Li J.,
RA Liu S., Luros S., Schwartz J., Shinn P., Toriumi M., Vysotskaya V.S.,
RA Walker M., Yu G., Ecker J., Theologis A., Davis R.W.;
RL Submitted (SEP-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AC008017; AAD55661.1; -
SQ SEQUENCE 417 AA; 49108 MM; 106F2175856666D0 CRC64;

	Matches	7;	Conservative	0;	Mismatches	4;	Indels	0;	Gaps	0;
QY	2	RTKPEKCDKPR	12							
Db	102	RWKPSKCDLPR	112							

Search completed: November 9, 2000, 15:39:34
Job time: 611 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:31:55 ; Search time 72.39 seconds
(without alignments)
17.533 Million cell updates/sec

Title: US-09-266-543-4

Perfect score: 120

Sequence: 1 CECRPKDKRTKPEKCDKPRR 20

Scoring table:

BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Maximum Match 0%

Listing first 45 summaries

Database :

1: PIR65:*
2: PIR1:*
3: PIR3:*
4: PIR4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	101	84.2	120	2 A33787	vascular endothell
2	101	84.2	146	2 S57956	ovine vascular end
3	85	70.8	190	2 B44881	vascular endothell
4	85	70.8	190	2 A35987	glioma-derived vas
5	83	69.2	214	2 A44881	vascular endothell
6	70	58.3	149	2 A41336	placental growth f
7	69	57.5	190	2 S52130	vascular endothell
8	67	55.8	232	2 A41551	vascular endothell
9	66	55.0	190	2 B40080	vascular endothell
10	57	47.5	463	1 XUBXSD	dihydroliipamide s
11	55.5	46.2	128	2 I51295	vascular endothell
12	55	45.8	1786	1 MMHUB1	laminin beta-1 cha
13	55	45.8	1786	1 MMHUB1	laminin beta-1 cha
14	52.5	43.8	188	2 JC4680	vascular endothell
15	51	42.5	133	2 B49530	vascular endothell
16	51	42.5	207	2 JC4679	vascular endothell
17	50	41.7	293	2 T09028	hypothetical prote
18	49.5	41.2	160	2 J00542	185k secretory pro
19	49.5	41.2	1620	2 T27283	hypothetical prote
20	49.5	41.2	1700	2 S08167	hypothetical prote
21	49	40.8	640	2 T27764	Balbiant ring 3 pr
22	48	40.0	271	2 T08009	hypothetical prote
23	47	39.2	158	2 A56125	probable ribosomal
24	47	39.2	314	2 C29960	placental growth f
25	47	39.2	1038	2 T13177	Balbiant ring 2 ch
26	47	39.2	2616	2 A57096	sog protein - frui
27	47	39.2	3951	1 VFIRH1	nudel protein prec
28	45.5	37.9	248	1 JH0612	F1 protein - avian
29	45.5	37.9	581	2 B54665	amphiregulin precu
					netrin-2 precursor

30	45.5	37.9	606	2 A54665	netrin-1 precursor
31	45	37.5	249	2 T24604	hypothetical prote
32	45	37.5	261	2 UN0747	histone H1-I. Vol
33	45	37.5	376	2 S71558	probable cell wall
34	45	37.5	465	2 S56203	regulatory protein
35	45	37.5	607	1 S52629	catechol oxidase (
36	45	37.5	2823	2 T23064	hypothetical prote
37	45	37.5	3102	2 T43291	laminin alpha cha
38	44.5	37.1	392	2 T19327	hypothetical prote
39	44.5	37.1	460	2 T33596	hypothetical prote
40	44	36.7	79	2 S01718	Balbiant ring prot
41	44	36.7	95	2 S01717	Balbiant ring prot
42	44	36.7	99	2 A55819	nonhistone chromos
43	44	36.7	431	2 A65019	hypothetical prote
44	44	36.7	638	2 S66479	catechol oxidase (
45	44	36.7	749	2 A45294	Balbiant ring 2.1

ALIGNMENTS

RESULT 1
A33787
vascular endothelial growth factor (version 1) - bovine
C:Species: Bos primigenius taurus (cattle)
C:Date: 16-Mar-1990 #sequence_revision 16-Mar-1990 #text_change 05-Nov-1999
C:Accession: A33787
R:Ritscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Cr
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A>Title: Vascular endothelial growth factor: a new member of the platelet-derived gro
A:Reference number: A33787, PMID:90121225
A:Accession: A33787
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-120 <RIS>
C:Cross-references: GB:M33750; NID:q163810; PIDN:AAA30805.1; PID:q163811
C:Keywords: alternative splicing

Query Match 84.2%; Score 101; DB 2; Length 120;
Best local Similarity 80.0%; Pred. No. 7.1e-07;
Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20

DB 101 CECRPKDKRAREKCDKPRR 120

RESULT 2

S57956

ovine vascular endothelial growth factor - sheep
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C:Date: 13-Jan-1996 #sequence_revision 01-Mar-1996 #text_change 05-Nov-1999
C:Accession: S57956
R:Redmer, D.A.; Dal, Y.; Li, J.; Jones, S.C.; Moor, R.M.
submitted to the EMBL Data Library, July 1995

A:Reference number: S57956

A:Accession: S57956

A>Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-146 <RND>

A:Cross-references: EMBL:X89506; NID:g899350; PIDN:CAA61677.1; PID:g899351

Query Match 84.2%; Score 101; DB 2; Length 146;
Best local Similarity 80.0%; Pred. No. 8.3e-07;

Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPKDKRTKPEKCDKPRR 20

DB 127 CECRPKDKRAREKCDKPRR 146

```
RESULT 3
B44881
Vascular endothelial growth factor-1 precursor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence_revision 03-Feb-1994 #text_change 05-Nov-1999
C:Accession: B44881; A43351; A61029
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860
A:Accession: B44881
A:Molecule type: mRNA
A:Residues: 1-190 <BR>
A:Cross-references: GB:S38083; NID:g249858; PIDN:AAB22253.1; PID:g249859
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBI:P:107623)
R:Claffey, K.P.; Milkison, W.O.; Spiegelman, B.M.
J. Biol. Chem. 267, 16317-16322, 1992
A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti
A:Reference number: A43351; MUID:92355593
A:Accession: A43351
A:Molecule type: mRNA
A:Residues: 1-116, 119-190 <CL>
A:Cross-references: GB:M35200; NID:g202350; PIDN:AAA40547.1; PID:g202351
A:Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBI:P:110675)
R:Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.
Growth Factors 4, 53-59, 1990
A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial g
A:Reference number: A61029; MUID:91197543
A:Accession: A61029
A:Molecule type: protein
A:Residues: 27-38 <ROS>
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mit
```

Query Match 70.8%; Score 85; DB 2; Length 190;
Best Local Similarity 29.7%; Pred. No. 0.00014;
Matches 19; Conservative 1; Mismatches 0; Indels 44; Gaps 1;

DB 127 CECRPRKDRTPENHCEPSEBRKHLFPVDPQTCCKSCNTDSRCAROLELNERTCRD 186

QY 1 CECRPRKDRTPKPE-----KCD 16
|||||
DB 127 CECRPRKDRTPENHCEPSEBRKHLFPVDPQTCCKSCNTDSRCAROLELNERTCRD 186

QY 17 KPRR 20
|||
DB 187 KPRR 190

RESULT 4

A35987
g1oma-derived vascular endothelial cell growth factor - rat
C:Species: Rattus norvegicus (Norway rat)
C:Date: 16-Nov-1990 #sequence_revision 16-Nov-1990 #text_change 05-Nov-1999
C:Accession: A35987
R:Conn, G.; Bayne, M.L.; Soderman, D.D.; Kwock, P.W.; Sullivan, K.A.; Pallst, T.M.; Hope,
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990
A:Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is ho
A:Reference number: A35987; MUID:90207249
A:Accession: A35987
A>Status: Preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <CON>
A:Cross-references: GB:M32167; NID:g204287; PIDN:AAA41211.1; PID:g204288

Query Match 70.8%; Score 85; DB 2; Length 190;
Best Local Similarity 29.7%; Pred. No. 0.00014;
Matches 19; Conservative 1; Mismatches 0; Indels 44; Gaps 1;

QY 1 CECRPRKDRTPKPE-----KCD 16
|||||
DB 127 CECRPRKDRTPENHCEPSEBRKHLFPVDPQTCCKSCNTDSRCAROLELNERTCRD 186

```
QY 17 KPRR 20  
|||  
DB 187 KPRR 190
```

RESULT 5

A44881
Vascular endothelial growth factor-3 precursor - mouse
N:Contains: vascular endothelial growth factor-2; vascular permeability factor
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence_revision 03-Feb-1994 #text_change 08-Oct-1999
C:Accession: A44881; C44881; A60932; S52136
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860
A:Accession: A44881
A:Molecule type: mRNA
A:Residues: 1-214 <BRE>
A:Cross-references: GB:S37052; NID:g249856; PIDN:AAB22252.1; PID:g249857
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBI:P:104678)
A:Accession: C44881
A:Molecule type: mRNA
A:Residues: 1-140, 209-214 <BR2>
A:Cross-references: GB:S38100; NID:g249860; PIDN:AAB22254.1; PID:g249861
A:Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBI:P:107625)
R:Claus, M.; Gerlach, M.; Gerlach, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan, Y
J. Exp. Med. 172, 1535-1545, 1990
A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces endot
A:Reference number: A60932; MUID:91079755
A:Accession: A60932
A:Molecule type: protein
A:Residues: 27-33 <CL>
R:Sugihara, T.; Kaul, S.C.; Mitsui, Y.; Wadhwa, R.
Biochim. Biophys. Acta 1224, 365-370, 1994
A:Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous
A:Reference number: S52136; MUID:95101726
A:Accession: S52136
A>Status: Preliminary
A:Molecule type: protein
A:Residues: 27-46 <SUG>
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.
C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodim
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-214/Product: vascular endothelial growth factor-3 #status experimental <ANT>

Query Match 69.2%; Score 83; DB 2; Length 214;
Best Local Similarity 100.0%; Pred. No. 0.00029;
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 CECRPRKDRTPKPE 14
|||||
DB 127 CECRPRKDRTPKPE 140

RESULT 6

A41236
Placental growth factor precursor - human
C:Species: Homo sapiens (man)
C:Date: 19-Jun-1992 #sequence_revision 19-Jun-1992 #text_change 05-Nov-1999
C:Accession: A41236
R:Maglione, D.; Gueriero, V.; Vignetto, G.; Della-Bovi, P.; Persico, M.G.
Proc. Natl. Acad. Sci. U.S.A. 88, 9267-9271, 1991
A:Title: Isolation of a human placenta cDNA coding for a protein related to the vascu
A:Reference number: A41236; MUID:92021031
A:Accession: A41236
A>Status: Preliminary
A:Molecule type: mRNA
A:Residues: 1-149 <MG>
A:Cross-references: GB:X54936; NID:g35521; PIDN:CAA38698.1; PID:g35522
C:Genetics:

A:Gene: GDB:PGF
A:Cross-references: GDB:134676; OMIM:601121
A:Map position: 14q24-14q31

Query Match 58.3%; Score 70; DB 2; Length 149;
Best Local Similarity 54.5%; Pred. No. 0.012;
Matches 12; Conservative 4; Mismatches 4; Indels 2; Gaps 1;

QY 1 CECRPRKDRKPRKCDK-PRR 20
||||| : : : : : |||
DB 128 CECRPLREKMKPRCAGDAPRR 149

RESULT 7
S52130
C:Species: Sus scrofa domestica (domestic pig)
C:Date: 14-Jul-1995 #sequence_revision 21-Jul-1995 #text_change 05-Nov-1999
C:Accession: S52130
R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.
Biochim. Biophys. Acta 1260, 235-238, 1995
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growth factor
A:Reference number: S52130; MUID:95143284
A:Accession: S52130
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <SHA>
A:Cross-references: GB:X81380; NID:9587559; PIDN:CAA57143.1; PID:9587560

Query Match 57.5%; Score 69; DB 2; Length 190;
Best Local Similarity 25.0%; Pred. No. 0.02;
Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;

QY 1 CECRPRKDRKPRKPE-----KCD 16
||||| : : : : : |||
DB 127 CECRPRKDRARQNPQPCSERRKHLFVDDPOTCKSCKNWTDSCKAROLEMNERQCD 186
QY 17 KPRR 20
|||||
DB 187 KPRR 190

RESULT 8
A41551
C:Species: Homo sapiens (man)
C:Date: 28-Aug-1992 #sequence_revision 28-Aug-1992 #text_change 05-Nov-1999
C:Accession: A41551; C41551; B41551; A40454; B40454; C40454; A40079; A40080; JQ1463; JQ1464; J. Biol. Chem. 266, 11947-11954, 1991
Mol. Endocrinol. 5, 1806-1814, 1991
A:Title: The vascular endothelial growth factor family: identification of a fourth member
A:Reference number: A41551; MUID:92168017
A:Accession: A41551
A:Molecule type: mRNA
A:Residues: 1-232 <HOU1>
A:Cross-references: GB:S85192; NID:g246155; PID:g246156
A:Accession: C41551
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <HOU2>
A:Accession: B41551
A:Status: nucleic acid sequence not shown; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-141, 227-232 <HOU>
R:Rischer, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fiddes, J.C.; At J. Biol. Chem. 266, 11947-11954, 1991
A:Title: The human gene for vascular endothelial growth factor. Multiple protein forms
A:Reference number: A40454; MUID:91268072
A:Accession: A40454

A:Molecule type: DNA
A:Residues: 1-165, 183-232 <TI>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63976;
A:Accession: B40454
A:Molecule type: DNA
A:Residues: 1-140, 'N', 183-232 <TI2>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63977;
A:Accession: C40454
A:Molecule type: DNA
A:Residues: 1-141, 227-232 <TI3>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978
R:Reck, P.J.; Hauser, S.D.; Krivi, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.
Science 246, 1309-1312, 1989
A:Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF.
A:Reference number: A40079; MUID:90069609
A:Accession: A40079
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-165, 183-232 <KEC>
A:Cross-references: GB:M27281; NID:g340300; PIDN:AAA36807.1; PID:g340301
R:Leung, D.W.; Cachianes, G.; Kiang, W.-J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A:Reference number: A40080; MUID:90069608
A:Accession: A40080
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <LEU>
A:Cross-references: GB:M32977; NID:g181970; PIDN:AAA35789.1; PID:g181971
R:Weinreb, K.; Marne, D.; Welch, H.A.
Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992
A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial growth factor
A:Reference number: JQ1463; MUID:92231879
A:Accession: JQ1463
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <WEI>
A:Cross-references: EMBL:X62568; NID:g37658; PIDN:CAA44447.1; PID:g37659
A:Experimental source: AIDS-Kaposi's sarcoma cell
A:Accession: JQ1464

A:Molecule type: mRNA
A:Residues: 1-140, 'N', 227-232 <WE2>
A:Experimental source: AIDS-Kaposi's sarcoma cell
R:Connolly, D.T.; Olander, J.V.; Heuvelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; J. Biol. Chem. 264, 20017-20024, 1989
A:Title: Human vascular permeability factor. Isolation from U937 cells.
A:Reference number: A34492; MUID:90062112
A:Accession: A34492
A:Molecule type: protein
A:Residues: 27-36, 43-49, 'R', 72-76, 'Q', 78-81, 59-71 <CON>
C:Comment: The most common of several alternatively spliced forms is VEGF 165.
C:Genetics: GDB:VEGF
A:Gene: GDB:VEGF
A:Cross-references: GDB:132244; OMIM:192240
A:Map position: 6p21-6p12
C:Function:
A:Description: Promotes fluid and protein leakage from blood vessels
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular
F:1-232/Product: vascular endothelial growth factor 206 precursor #status predicted
F:1-165, 183-232/Product: vascular endothelial growth factor 189 precursor #status pre
F:1-141, 227-232/Product: vascular endothelial growth factor 121 precursor #status pre
F:1-26/Domain: signal sequence #status predicted <Sig>
F:101/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 55.8%; Score 67; DB 2; Length 232;
Best Local Similarity 78.6%; Pred. No. 0.044;
Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPRKDRKPRK 14
||||| : : : : : |||
DB 128 CECRPRKDRARQER 141

```

RESULT 9
B40080
vascular endothelial growth factor precursor (version 2) - bovine
C:Species: Bos primigenius taurus (cattle)
C:Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 05-Nov-1999
C:Accession: B40080; B33787; A33255
R:Leung, D.W.; Cachianes, G.; Kiang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A:Reference number: A40080; MUID:90069608
A:Accession: B40080
A:Molecule type: mRNA
A:Residues: 1-190 <LEU>
A:Cross-references: GB:M31836; NID:g163806; PIDN:AA30502.1; PID:g163007
R:Bioscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crisf
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth
A:Reference number: A33787; MUID:90121225
A:Accession: B33787
A:Molecule type: mRNA
A:Residues: 27-190 <TIS>
A:Cross-references: GB:M31836; NID:g163808; PIDN:AA30804.1; PID:g163809
R:Ferrara, N.; Henzel, W.J.
Biochem. Biophys. Res. Commun. 161, 851-858, 1989
A:Title: Placental follicular cells secrete a novel heparin-binding growth factor specif
A:Reference number: A33255; MUID:89286596
A:Accession: A33255
A:Molecule type: protein
A:Residues: 27-31 <FER>
C:Keywords: alternative splicing; glycoprotein
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>
F:100/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 55.0%; Score 66; DB 2; Length 190;
Best Local Similarity 23.4%; Pred. No. 0.051;
Matches 15; Conservative 3; Mismatches 2; Indels 44; Gaps 1;

QY 1 CECRPRKDRTPK-----KCD 16
|||||:|:|
Db 127 CECRPRKARQENCGCSERRKHLFVDPOTCKSCCKNTDSRCKARQLERNTGCD 186
|||||:|:|
QY 17 KPRR 20
|||||
Db 187 KPRR 190

RESULT 10
XOBYSD
dihydrolipomide S-succinyltransferase (EC 2.3.1.61) precursor - yeast (Saccharomyces ce
N:Alternate names: alpha-ketoglutarate dehydrogenase complex chain KE2; dihydrolipoyl th
C:Species: Saccharomyces cerevisiae
C:Date: 30-Sep-1991 #sequence_revision 12-Apr-1996 #text_change 05-May-2000
R:Accession: S57975; A35654; S78755; S11195
R:Murphy, L.; Richards, C.; Harris, D.
submitted to the EMBL Data Library, July 1995
A:Reference number: S57971
A:Accession: S57975
A:Molecule type: DNA
A:Residues: 1-463 <MOR>
A:Cross-references: EMBL:Z50046; NID:g899393; PIDN:CAA90371.1; PID:g899398; GSPDB:GN0000
A:Experimental source: strain AB972
R:Repetto, B.; Tzagoloff, A.
Mol. Cell. Biol. 10, 4221-4232, 1990
A:Title: Structure and regulation of KGD2, the structural gene for yeast dihydrolipoyl t
A:Reference number: A35654; MUID:90318388
A:Accession: A35654
A:Molecule type: DNA
A:Residues: 1-169, 'HKVSPQGTQVRRKLQR', 188, 'KLQR', 194, 'KPLQR', 200, 'KLONO', 206, 'RT', 209-
A:Cross-references: EMBL:M34531; NID:g171782; PIDN:AA34720.1; PID:g171783
R:Ruecknagel, K.P.; Roßpert, S
submitted to the Protein Sequence Database, March 1999

```

```

A:Reference number: S78754
A:Accession: S78755
A:Molecule type: protein
A:Residues: 72-83 <RUE>
C:Genetics:
A:Gene: SGD:KGD2; MIPS:YDR148C
A:Cross-references: SGD:S000255; MIPS:YDR148C
A:Map position: 4R
A:Genome: nuclear
C:Superfamily: dihydroilipoamide acetyltransferase; lipoyl/biotin-binding homology
C:Keywords: acetyl-CoA; acyltransferase; coenzyme A; lipoamide; mitochondrion; tricaral
E:1-71/Domain: transit peptide (mitochondrion) #status experimental <TNP>
E:72-463/Product: dihydroilipoamide S-succinyltransferase #status experimental <MAT>
E:75-148/Domain: lipoyl/biotin-binding homology <LPS>
F:114/Binding site: lipoamide (Lys) (covalent) #status predicted
F:435/439/Active site: His, Asp #status predicted

Query Match 47.5%; Score 57; DB 1; Length 463;
Best Local Similarity 47.4%; Pred. No. 1.7;
Matches 9; Conservative 6; Mismatches 4; Indels 0; Gaps 0;

QY 2 ECRPKDKRTKPEKCDKPRK 20
Db 195 EAAPKKEVTEPRKADQPKR 213

RESULT 11
151295
Vascular endothelial growth factor - quail (fragment)
C:Species: Phasianidae gen. sp. (quail)
C:Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 28-Feb-1997
C:Accession: I51295
R:Flamme, I.; Breier, G.; Risau, W.
Dev. Biol. 169, 699-712, 1995
A:Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (flk-1) are ex
A:Reference number: I51295; MUID:95301109
A:Accession: I51295
A:Status: Preliminary; translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-128 <FLA>
A:Cross-references: GB:S78343; NID:g999147; PID:g999148
C:Genetics:
A:Gene: VEGF

Query Match 46.2%; Score 55.5; DB 2; Length 128;
Best Local Similarity 61.1%; Pred. No. 0.94;
Matches 11; Conservative 2; Mismatches 4; Indels 1; Gaps 1;

QY 1 CECRPKRD-RTKPEKDK 17
Db 69 CDCRPKDKVKNKOEKSK 86

RESULT 12
MMHUB1
laminin beta-1 chain precursor - human
N:Alternate names: laminin chain BI
C:Species: Homo sapiens (man)
C:Date: 30-Jun-1991 #sequence_revision 30-Jun-1991 #text_change 10-Dec-1999
C:Accession: S13547; A28483; A26994; S23566
R:Vuolteenaho, R.; Chow, L. T.; Trygvasen, K.
J. Biol. Chem. 265, 15611-15616, 1990
A:Title: Structure of the human laminin BI chain gene.
A:Reference number: S13547; MUID:90368768
A:Accession: S13547
A:Status: nucleic acid sequence not shown; translation not shown
A:Molecule type: DNA.
A:Residues: 1-1786 <YU>

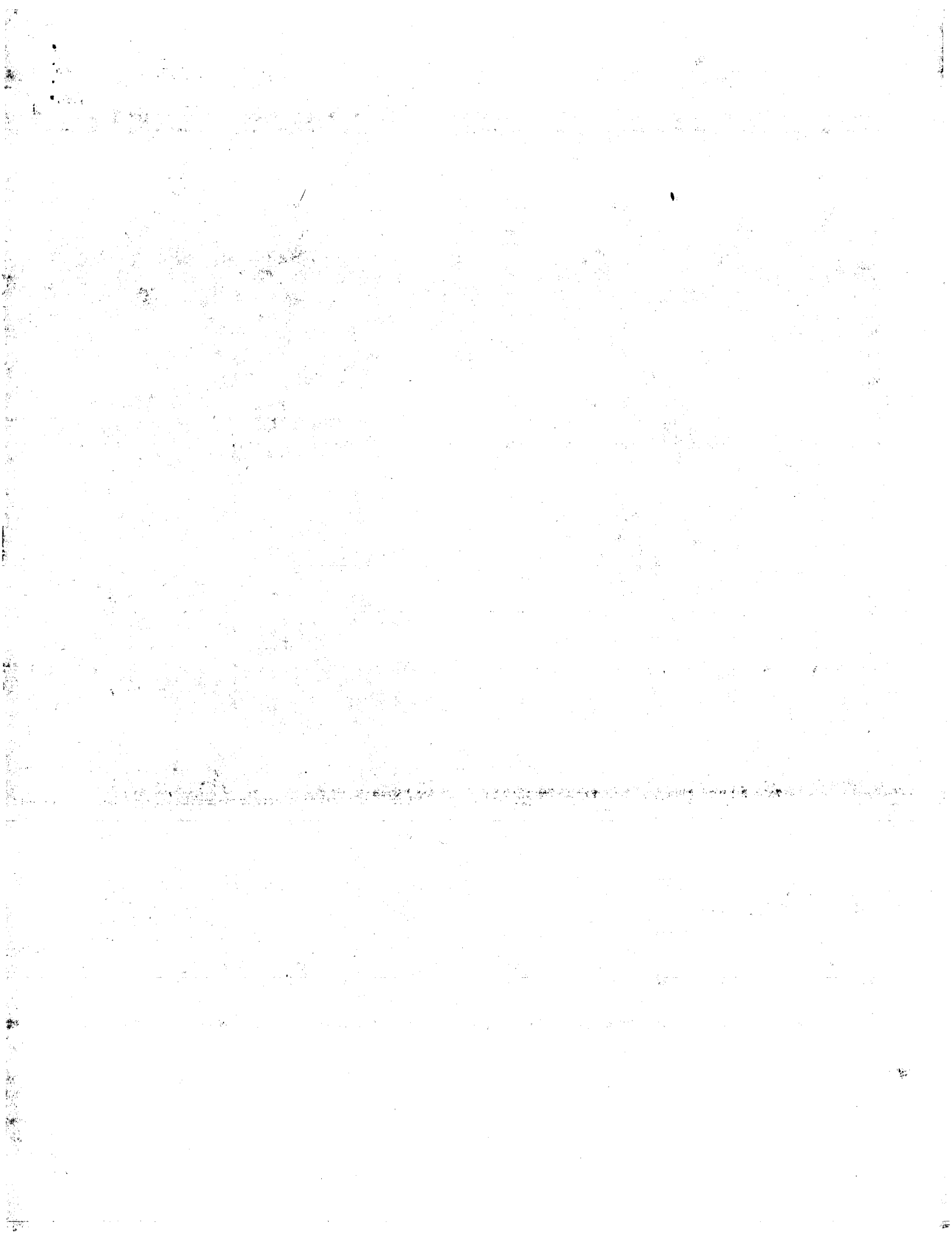
A:Cross-references: GB:M61951; GB:J02778; NID:g186911; PIDN:AAAS9486.1; PID:g186913
A:Note: The nucleotide sequence was submitted to GenBank, February 1991
A:Plkkratnan, T.; Eddy, R.; Fukushima, Y.; Byers, M.; Shows, T.; Pihlajaniemi, T.; S

```

J. Biol. Chem. 262, 10454-10462, 1987
 A:Title: Human laminin B1 chain. A multidomain protein with gene (LAMB1) locus in the q2
 A:Reference number: A28483; MWID:8728097
 A:Accession: A28483
 A:Molecule type: mRNA
 A:Residues: 1-1786 <PIK>
 A:Cross-references: GB:61951; GB:J02778; NID:q186911; PID:AA59486.1; PID:q186913
 R:Jaye, M.; Modl, W.S.; Ricca, G.A.; Mudd, R.; Chlu, I.M.; O'Brien, S.J.; Drohan, W.N.
 Am. J. Hum. Genet. 41, 605-615, 1987
 A:Title: Isolation of a cDNA clone for the human laminin-B1 chain and its gene localized
 A:Reference number: A26994; MWID:88021029
 A:Accession: A26994
 A:Molecule type: mRNA
 A:Residues: 1276-1469, 'V', 1471-1695, 'G', 1697-1709 <JAY>
 A:Cross-references: EMBL:M20206; NID:q186914; PID:AA59487.1; PID:q186915
 R:Vollbrecht, R.; Kallunki, T.; Chow, L.; Ikonen, J.; Pikkari, T.; Tytgason, K.
 In Extracellular Matrix Genes, Sandell L.J. and Boyd C.D., eds., pp. 175-193, Academic P
 A:Title: Genes for the human laminin B1 and B2 chains.
 A:Reference number: S23566
 A:Accession: S23566
 A:Molecule type: DNA
 A:Residues: 762-1786 <VU2>
 A:Note: mRNA was also sequenced
 C:Genetics:
 A:Gene: GDB:LAMB1
 A:Map position: 7q31.1-7q31.3
 A:References: 13/1, 71/3, 117/1, 141/3, 204/3, 226/1, 293/3, 334/1, 397/1, 457/1, 494/3, 52
 64/3, 1511/1, 1562/2, 1629/3, 1688/3, 1742/1
 C:Complex: Laminins are trimers of an alpha-type, a beta-type, and a gamma-type laminin
 C:Function:
 A:Description: Interact with cells and with other basement membrane proteins to promote
 C:Superfamily: laminin beta-1 chain; laminin-type EGF-like homology
 F:121/Domain: basement membrane; calcium binding; cell binding; coiled coil; extracellular
 F:22-1786/Product: laminin beta-1 chain #status predicted <SIG>
 F:22-270/Domain: VI <DOM6>
 F:271-548/Domain: V <DOM5>
 F:271-332/Domain: laminin-type EGF-like homology <LE01>
 F:335-395/Domain: laminin-type EGF-like homology <LE02>
 F:398-455/Domain: laminin-type EGF-like homology <LE03>
 F:458-507/Domain: laminin-type EGF-like homology <LE04>
 F:463-468/Domain: cell-attachment
 F:510-540/Domain: laminin-type EGF-like homology #status atypical <LE05>
 F:549-774/Domain: IV <DOM4>
 F:662-668/Domain: cell attachment
 F:773-818/Domain: laminin-type EGF-like homology <LE06>
 F:775-1178/Domain: III <DOM3>
 F:821-864/Domain: laminin-type EGF-like homology <LE07>
 F:867-914/Domain: laminin-type EGF-like homology <LE08>
 F:917-973/Domain: laminin-type EGF-like homology <LE09>
 F:923-927/Domain: cell attachment
 F:950-954/Domain: cell attachment
 F:976-1025/Domain: laminin-type EGF-like homology <LE10>
 F:1028-1081/Domain: laminin-type EGF-like homology <LE11>
 F:1084-1139/Domain: laminin-type EGF-like homology <LE12>
 F:1132-1176/Domain: laminin-type EGF-like homology <LE13>
 F:1179-1387/Domain: II <DOM2>
 F:1179-1397/Domain: heptad repeats
 F:1398-1430/Domain: alpha <ALP>
 F:1431-1786/Domain: I <DOM1>
 F:1431-1786/Region: heptad repeats
 F:30-35/Disulfide bonds: #status predicted
 F:120,356,519,677,965,1041,1195,1279,1336,1343,1487,1542,1643/Binding site: carbohydrate
 F:1179,1182,1785/Disulfide bonds: Interchain #status predicted

Query Match 45.8%; Score 55; DB 1; Length 1786;
 Best Local Similarity 52.9%; Pred. NO. 9.2;
 Matches 9; Conservative 1; Mismatches 7; Indels 0; Gaps 0;
 QY 1 CECRPRKDRTPKCDK 17
 I:I I I I I I I

DB 976 CQCHNNTDTPKCDK 992
 RESULT 13
 MMSB1
 Laminin beta-1 chain 'precursor' - mouse
 N:Alternate names: laminin chain B1
 C:Species: Mus musculus (house mouse)
 C:Date: 28-Feb-1986 #sequence-revision 30-Jun-1991 #text-change 10-Dec-1999
 C:Accession: A26413; S02679; S05326; S14877; A02871; S02036; S13543
 R:Sasak, M.; Kato, S.; Kohno, K.; Martin, G.R.; Yamada, Y.
 Proc. Natl. Acad. Sci. U.S.A. 84, 935-939, 1987
 A:Title: Sequence of the cDNA encoding the laminin B1 chain reveals a multidomain pro
 A:Reference number: A26413; MWID:87147212
 A:Accession: A26413
 A:Molecule type: mRNA
 A:Residues: 1-1786 <SAS>
 A:Cross-references: EMBL:M15525; NID:q198700
 A:Note: translation in GenBank has additional 48 residues at the amino end
 R:Fujiwara, S.; Shinkai, H.; Deutzmann, R.; Paulsson, M.; Timpl, R.
 Biochem. J. 252, 453-461, 1988
 A:Title: Structure and distribution of N-linked oligosaccharide chains on various com
 A:Reference number: S02678; MWID:88326259
 A:Accession: S02679
 A:Molecule type: protein
 A:Residues: 28-42;932-946 <FU>
 R:Hartl, L.; Oberhaemer, I.; Deutzmann, R.
 Eur. J. Biochem. 173, 629-635, 1988
 A:Title: The N terminus of laminin A chain is homologous to the B chains.
 A:Reference number: S00624; MWID:88225080
 A:Accession: S05326
 A:Molecule type: protein
 A:Residues: 457-466;854-868;932-946 <HAR>
 R:Mann, K.; Deutzmann, R.; Timpl, R.
 Eur. J. Biochem. 176, 71-80, 1988
 A:Title: Characterization of proteolytic fragments of the laminin-nidogen complex and
 A:Reference number: S08895; MWID:89078415
 A:Accession: S14877
 A:Molecule type: protein
 A:Residues: 590-620 <MAN>
 R:Barlow, D.P.; Green, N.M.; Kurkinen, M.; Hogan, B.L.M.
 EMBO J. 3, 2355-2362, 1984
 A:Title: Sequencing of laminin B chain cDNAs reveals C-terminal regions of coiled-coil
 A:Reference number: A02870; MWID:85051302
 A:Accession: A02871
 A:Molecule type: mRNA
 A:Residues: 1292-1530, 'MEMP', 1535-1691, 'C', 1693-1748, 'N', 1750-1786 <BAR>
 A:Cross-references: EMBL:X05212; NID:q52861; PID:CAA28839.1; PID:q809042
 R:Deutmann, R.; Huber, J.; Schmetz, K.A.; Oberhaemer, I.; Hartl, L.
 Eur. J. Biochem. 177, 35-45, 1988
 A:Title: Structural study of long arm fragments of laminin. Evidence for repetitive C
 A:Reference number: S01790; MWID:89030693
 A:Accession: S02036
 A:Molecule type: protein
 A:Residues: 1561-1587 <DEU>
 R:Paulsson, M.; Deutzmann, R.; Timpl, R.; Daloz, D.; Odermatt, E.; Engel, J.
 EMBO J. 4, 309-316, 1985
 A:Title: Evidence for coiled-coil alpha-helical regions in the long arm of laminin.
 A:Reference number: S13543; MWID:85257455
 A:Accession: S13543
 A:Molecule type: protein
 A:Residues: 1700-1743, 'N', 1750-1759 <PAN>
 C:Genetics:
 A:Gene: Lamb-1
 A:Map position: 12
 C:Complex: Laminins are trimers of an alpha-type, a beta-type, and a gamma-type lamin
 C:Function:
 A:Description: Interact with cells and with other basement membrane proteins to promo
 C:Superfamily: laminin beta-1 chain; laminin-type EGF-like homology
 F:121/Domain: basement membrane; calcium binding; cell binding; coiled coil; extracellular
 F:22-1786/Product: laminin beta-1 chain #status predicted <SIG>
 F:22-270/Domain: VI <DOM6>



GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:40:16 ; Search time 41.83 Seconds
(without alignments)
15.275 Million cell updates/sec

Title: US-09-266-543-4
Sequence: 1 CECRPRKDRTRKCDKPRR 20

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues

Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_39:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	101	84.2	146	1	VEGF_SHEEP
2	85	70.8	190	1	VEGF_RAT
3	83	69.2	214	1	VEGF_MOUSE
4	69	57.5	190	1	VEGF_PIG
5	67	55.8	215	1	VEGF_HUMAN
6	66	55.0	190	1	VEGF_BOVIN
7	62	51.7	164	1	VEGF_CAVO
8	57	47.5	170	1	PLGF_HUMAN
9	57	47.5	170	1	PLGF_MOUSE
10	55.5	46.2	216	1	VEGF_CHICK
11	55	45.8	1786	1	LMB1_HUMAN
12	55	45.8	1786	1	LMB1_MOUSE
13	52.5	43.8	188	1	VEGF_HUMAN
14	52.5	43.8	188	1	VEGF_MOUSE
15	51	42.5	133	1	VEGF_ORF2
16	51	42.5	235	1	BAR6_CHITE
17	49.5	41.2	1700	1	BAR3_CHITE
18	49	40.8	640	1	TS44_CAEEL
19	48	40.0	271	1	RL5_DUNSA
20	47	39.2	158	1	PLGF_MOUSE
21	47	39.2	1038	1	SDG_MOUSE
22	47	39.2	2616	1	NDL_DROME
23	47	39.2	3951	1	VEGF_MOUSE
24	45.5	37.9	248	1	SDG_MOUSE
25	45.5	37.9	581	1	NET2_CHICK
26	45.5	37.9	606	1	NET1_CHICK
27	45	37.5	260	1	H11_VOICA
28	45	37.5	465	1	YFE2_YEAST
29	45	37.5	607	1	PRO_VITVI
30	44.5	37.1	392	1	TQ36_CAEEL
31	44	36.7	205	1	H1E_STRPU
32	44	36.7	326	1	BAR1_CHIPA
33	44	36.7	402	1	INT2_ECOLI

ALIGNMENTS

RESULT	1	STANDARD	PRT	146 AA.
VEGF_SHEEP				
ID	VEGF_SHEEP			
AC	P50412			
DT	01-OCT-1996 (Rel. 34, Created)			
DT	01-OCT-1996 (Rel. 34, Last sequence update)			
DT	01-NOV-1997 (Rel. 35, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).			
GN	VEGF.			
OS	Ovis aries (Sheep).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Caprinae; Ovis.			
OC	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE-KIDNEY;			
RA	Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K., Reynolds L.P., Moor R.M.;			
RT	Characterization and expression of vascular endothelial growth factor (VEGF) in the ovine corpus luteum.*;			
RT	J. Reprod. Fert. 108:157-165(1996).			
CC	- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.			
CC	- SUBUNIT: HOMODIMER. DISULFIDE-LINKED.			
CC	- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).			
CC	- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.			
CC	THIS SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/ or send an email to license@isb-sib.ch).			
CC	EMBL; X89506; CA61677.1; -			
DR	HSSP; P15692; 1VPF.			
DR	INTERPRO; IPR000072; -			
DR	PFAM; PFO0341; PDGF_1.			
DR	PROSITE; PS00249; PDGF_1; 1.			
DR	PROSITE; PS00278; PDGF_2; 1.			
KW	Mitogen; Growth factor; Glycoprotein; Signal.			
FT	CHAIN	1	26	
FT	SIGNAL	27	146	
FT	DISULFID	51	93	
FT	DISULFID	82	127	
FT	DISULFID	86	129	
FT	DISULFID	76	76	
FT	DISULFID	85	85	
FT	CARBOHYD	100	100	
SO	SEQUENCE	146 AA;	17247 MW;	4E792CB557E9160 CRC64;

34	44	36.7	639	1	PPO_SPIOI	P43310 spinacia ol
35	44	36.7	1020	1	NFH_HUMAN	P12036 homo sapien
36	44	36.7	1097	1	CCT_DROME	O96433 drosophila
37	44	36.7	1801	1	LMB2_RAT	P15800 rattus norv
38	43.5	36.2	297	1	SGS4_DROME	O00725 drosophila
39	43.5	36.2	573	1	C114_MOUSE	P19467 mus musculu
40	43.5	36.2	3672	1	LMB2_CAEEL	O21313 caenorhabd1
41	43	35.8	58	1	MT_POTPO	P55952 potamon pot
42	43	35.8	193	1	H10_HUMAN	P07305 homo sapien
43	43	35.8	215	1	18C_DROME	P16909 drosophila
44	43	35.8	223	1	SRY_HORSE	P36389 equus caball
45	43	35.8	285	1	T0NB_HELPY	O25899 helicobacte

Query Match 84.2%; Score 101; DB 1; Length 146;
Best Local Similarity 80.0%; Pred. No. 1.5e-07;
Matches 16; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPRKDRTPKCDKPRR 20
|||||||: : |||||
DB 127 CECRPRKDRTPKCDKPRR 146

RESULT 2

VEGF_RAT STANDARD; PRT; 190 AA.

AC P16612;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

[1]
SEQUENCE FROM N.A., AND SEQUENCE OF 27-190.
RX MEDLINE; 90207249.
RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,
RA Palist T.M., Hope D.A., Thomas K.A.,
RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen
that is homologous to platelet-derived growth factor";
Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).
RL
-1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
PERMEABILITY.
CC
-1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC
-1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
SIMILARITY).
CC
-1- TISSUE SPECIFICITY: EXPRESSED IN THE PITUITARY, IN BRAIN, IN
PARTICULARLY IN SUPRAOPTIC AND PARAVENTRICULAR NUCLEI AND THE
CHOROID PLEXUS. ALSO FOUND ABUNDANTLY IN THE CORPUS LUTHEUM OF
THE OVARY AND IN KIDNEY GLOMERULI.
CC
-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

CC
-1- This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
or send an email to license@isb-sib.ch).
CC
EMBL; M32167; AAA41211.1; .
DR PIR; A35987; A35987.
DR HSP; P15692; 2VGH.
DR INTERPRO; IPR000072; .
DR PFM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal.
FT CHAIN 1 26
FT DISULFID 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .).
SQ SEQUENCE 190 AA; 22396 MW; 589374010441F377 CRC64;

Query Match 70.8%; Score 85; DB 1; Length 190;

Best Local Similarity 29.7%; Pred. No. 3.1e-05;
Matches 19; Conservative 1; Mismatches 0; Indels 44; Gaps 1;

QY 1 CECRPRKDRTPKCDKPRR 20
|||||||: : |||||
DB 127 CECRPRKDRTPKCDKPRR 146

QY 17 KPRR 20
|||||
DB 187 KPRR 190

RESULT 3

VEGF_MOUSE STANDARD; PRT; 214 AA.

AC Q00731;
DT 01-APR-1993 (Rel. 25, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

[1]
SEQUENCE FROM N.A.
RX MEDLINE; 92274860.
RA Breier G., Albrecht U., Sterrer S., Risau W.,
RT "Expression of vascular endothelial growth factor during embryonic
angiogenesis and endothelial cell differentiation";
Development 114:521-532(1992).
RL
[2]
SEQUENCE FROM N.A. (VEGF-1).
RX MEDLINE; 92355893.
RA Claffey K.P., Wilkison W.O., Spiegelman B.M.,
RT "Vascular endothelial growth factor. Regulation by cell
differentiation and activated second messenger pathways";
J. Biol. Chem. 267:16317-16322(1992).
RL
[3]
SEQUENCE OF 1-3 FROM N.A.
RX MEDLINE; 96216498.
RA Shima D.T., Kuroki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.,
RT "The mouse gene for vascular endothelial growth factor. Genomic
structure, definition of the transcriptional unit, and
characterization of transcriptional and post-transcriptional
regulatory sequences";
J. Biol. Chem. 271:3877-3883(1996).
RL
-1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
PERMEABILITY.
CC
-1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC
-1- SUBCELLULAR LOCATION: VEGF-1 AND VEGF-2 ARE SECRETED WHILE
VEGF-3 REMAINS CELL-SURFACE ASSOCIATED UNLESS RELEASED BY
HEPARIN.
CC
-1- ALTERNATIVE PRODUCTS: THREE FORMS (VEGF-1, VEGF-2 AND VEGF-3) ARE
PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME GENE. THE
LONGEST FORM (VEGF-3, SHOWN HERE) CONTAINS A BASIC INSERT LINKED
TO CELL-ASSOCIATION/HEPARIN-BINDING.
CC
-1- TISSUE SPECIFICITY: IN DEVELOPING EMBRYOS, EXPRESSED MAINLY IN
THE CHOROID PLEXUS, PARAVENTRICULAR NEUROEPITHELIUM, PLACENTA AND
KIDNEY GLOMERULI. ALSO FOUND IN BRONCHIAL EPITHELIUM, ADRENAL
GLAND AND IN SEMINIFEROUS TUBULES OF TESTIS. HIGH EXPRESSION OF
VEGF CONTINUES IN KIDNEY GLOMERULI AND CHOROID PLEXUS IN ADULTS.
CC
-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

CC
-1- This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
or send an email to license@isb-sib.ch).
CC

```
CC -----
DR EMBL: S37052; AAB22252.1; -
DR EMBL: S38083; AAB22252.1; -
DR EMBL: S38100; AAB22254.1; -
DR EMBL: M95200; AAA40547.1; -
DR EMBL: U41383; CAB35545.1; -
DR PIR: A43351; A43351.
DR HSP: P15692; 2VGH.
DR MGD: MGT103178; VEGF.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF_1; 1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS0278; PDGF_2; 1.
KM Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT SIGNAL 1 26
FT CHAIN 27 214
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT CARBOHYD 100 100
FT VARSPLIC 140 140
FT VARSPLIC 141 164
FT VARSPLIC 141 208
FT CONFLICT 117 118
SO SEQUENCE 214 AA 25283 MW; B5540B51EAB6E17 CRC64;
```

```
Query Match 69.2%; Score 83; DB 1; Length 214;
Best Local Similarity 100.0%; Pred. No. 6.5e-05;
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
```

```
OY 1 CECRPRKDRKPER 14
DB 127 CECRPRKDRKPER 140
```

```
RESULT 4
VEGF_PIG STANDARD; PRT; 190 AA.
ID VEGF_PIG
AC P49151;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DE 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Cetartiodactyla; Suina; Suidae; Sus.
RN [1]
RP SEQUENCE FROM N.A.
RX TISSUE=HEART;
RX MEDLINE: 95143284.
RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;
RT "Nucleotide sequence and expression of the porcine vascular
RT endothelial growth factor";
RL Biochim. Biophys. Acta 1260:235-238(1995).
-1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
PERMEABILITY (BY SIMILARITY).
-1- SUBUNIT: HOMODIMER. DISULFIDE-LINKED (BY SIMILARITY).
-1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
SIMILARITY).
-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
```

entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).

```
CC -----
DR EMBL: X81380; CA57143.1; -
DR HSP: P15692; 2VGH.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF_1; 1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS0278; PDGF_2; 1.
KM Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1 26
FT CHAIN 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT CARBOHYD 100 100
FT VARSPLIC 140 140
FT VARSPLIC 141 164
FT VARSPLIC 141 208
FT CONFLICT 117 118
SO SEQUENCE 190 AA; 22368 MW; 04D40B8D7913047F CRC64;
```

```
Query Match 57.5%; Score 69; DB 1; Length 190;
Best Local Similarity 25.0%; Pred. No. 0.0051;
Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;
```

```
OY 1 CECRPRKDRKPER 14
DB 127 CECRPRKDRKPER 140
```

```
OY 17 KPRR 20
DB 187 KPRR 190
```

```
RESULT 5
VEGF_HUMAN STANDARD; PRT; 215 AA.
ID VEGF_HUMAN
AC P15692;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF OR VEGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 90069608.
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic
RT mitogen.";
RL Science 246:1305-1309(1998).
RN [2]
RP SEQUENCE FROM N.A. AND PARTIAL SEQUENCE.
RX MEDLINE: 90069609.
RA Keck P.J., Hauser S.D., Krivi G., Sanzo K., Warren T., Feder J.,
RT Connolly D.T.;
RT "Vascular permeability factor, an endothelial cell mitogen related to
RT PDGF.";
RL Science 246:1303-1312(1989).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE: 91268072.
RA Fischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,
RT Fiddes J.C., Abraham J.A.;
RT "The human gene for vascular endothelial growth factor. Multiple
RT protein forms are encoded through alternative exon splicing.";
RL J. Biol. Chem. 266:11947-11954(1991).
RN [4]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92231879.
```

RA Weindel K., Marne D., Welch H.A.;
 RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular
 RL endothelial growth factor.";
 RN Biochem. Biophys. Res. Commun. 183:1167-1174(1992).
 RP [5]
 RX PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R.,
 RA Siegel N., Haymore B.L., Leininger R., Feder J.,
 RT "Human vascular permeability factor. Isolation from U937 cells.";
 RL J. Biol. Chem. 264:20017-20024(1989).
 RN [6]
 RX SEQUENCE OF 27-41.
 RA Fiebig B.L., Jaeger B., Schoellmann C., Weindel K., Wiltling J.,
 RA Kochs G., Marne D., Hug H., Welch H.A.;
 RT "Synthesis and assembly of functionally active human vascular
 RL endothelial growth factor homodimers in insect cells.";
 RN Eur. J. Biochem. 211:19-26(1993).
 RP [7]
 RX X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.
 RA Mueller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,
 RL "Vascular endothelial growth factor: crystal structure and functional
 RT mapping of the kinase domain receptor binding site.";
 RN Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).
 RP [8]
 RX X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.
 RA Mueller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;
 RT "The crystal structure of vascular endothelial growth factor (VEGF)
 RL refined to 1.93-A resolution: multiple copy flexibility and receptor
 binding.";
 RN Structure 5:1325-1338(1997).
 RP [9]
 RX X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.
 RA Klesmann C., Christinger H.W., Cochran A.G., Cunningham B.C.,
 RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;
 RT "Crystal structure of the complex between VEGF and a receptor-blocking
 RL peptide.";
 RN Biochemistry 37:17765-17772(1998).
 RP [10]
 RX STRUCTURE BY NMR OF 34-135.
 RA Fairbrother W.J., Champagne M.A., Christinger H.W., Keyt B.A.,
 RA Starovasnik M.A.;
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the
 RL receptor-binding domain of vascular endothelial growth factor.";
 RN protein Sci. 6:2250-2260(1997).
 RP [11]
 RX STRUCTURE BY NMR OF 137-215.
 RA Fairbrother W.J., Champagne M.A., Christinger H.W., Keyt B.A.,
 RA Starovasnik M.A.;
 RT "Solution structure of the heparin-binding domain of vascular
 RL endothelial growth factor.";
 RN Structure 6:637-648(1998).
 RP [12]
 RX FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 RL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 RN PERMEABILITY.
 RP [13]
 RX SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 RL TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 RN SIMILARITY).
 RP [14]
 RX ALTERNATIVE PRODUCTS: FOUR FORMS OF VEGF ARE PRODUCED BY
 RL ALTERNATIVE SPLICING OF THE SAME GENE (VEGF-121, VEGF-165,
 RN VEGF-189 AND VEGF-215).
 RP [15]
 RX SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 RL This SWISS-PROT entry is copyright. It is produced through a collaboration
 RN between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: M32977; AAA35789.1; -
 DR EMBL: M27281; AAA36807.1; -
 DR EMBL: M63978; AAA36804.1; -
 DR EMBL: M63971; AAA36804.1; JOINED.
 DR EMBL: M63972; AAA36804.1; JOINED.
 DR EMBL: M63973; AAA36804.1; JOINED.
 DR EMBL: M63974; AAA36804.1; JOINED.
 DR EMBL: M63975; AAA36804.1; JOINED.
 DR EMBL: M63976; AAA36804.1; JOINED.
 DR EMBL: M63977; AAA36804.1; JOINED.
 DR EMBL: X62568; CAA44447.1; -
 DR PIR: A34492; A34492.
 DR PIR: A40079; A40079.
 DR PIR: A40080; A40080.
 DR PIR: A40454; A40454.
 DR PIR: B40454; B40454.
 DR PIR: C40454; C40454.
 DR PIR: J01463; J01463.
 DR PIR: J01464; J01464.
 DR PIR: S17348; S17348.
 DR PDB: 1VGH; 08-APR-98.
 DR PDB: 2VGH; 08-APR-98.
 DR PDB: 1VPE; 08-APR-98.
 DR PDB: 2VPE; 29-JUL-98.
 DR PDB: 1VPP; 23-FEB-99.
 DR MTM: 192240; -
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF_1.
 DR PROSITE: PS00249; PDGF_1; 1.
 DR PROSITE: PS0278; PDGF_2; 1.
 KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal;
 KW 3D-structure.
 FT SIGNAL 1 26
 FT CHAIN 27 215
 FT DISULFID 52 94
 FT DISULFID 83 128
 FT DISULFID 87 130
 FT DISULFID 77 77
 FT DISULFID 66 86
 FT DISULFID 101 101
 FT CARBOHYD 141 141
 FT VARSPLIC 142 165
 FT VARSPLIC 142 209
 FT SEQUENCE 215 AA; 25173 MW; 7B9759AD5871FF33 CRC64;
 QY 1 CECRPKRRRTKPER 14
 DB 128 CECRPKRRRTKPER 141
 Query Match 55.8%; Score 67; DB 1; Length 215;
 Best Local Similarity 78.6%; Pred. No. 0.011;
 Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
 RESULT 6
 VEGF_BOVIN STANDARD; PRT; 190 AA.
 ID VEGF_BOVIN
 AC P15691;
 DT 01-APR-1990 (Rel. 14, Created)
 DT 01-APR-1990 (Rel. 14, Last sequence update)
 DT 01-OCT-1996 (Rel. 34, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
 DE PERMEABILITY FACTOR) (VPF).
 GN VEGF.
 OS Bos taurus (Bovine).

```

CC Eukaryota: Metazoa: Chordata: Crinista: Vertebrata: Euteleostomi:
CC Mammalia: Eutheria: Cetartiodactyla: Ruminantia: Pecora: Bovidae;
OC Bovidae: Bovinae: Bos.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.
RX MEDLINE: 90069608.
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic
RT mitogen".
RT Science 246:1306-1309(1989).
RN [2]
RP SEQUENCE OF 27-190 FROM N.A.
RX MEDLINE: 90121225.
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,
RA Lau K., Crisp T., Fiddes J.C., Abraham J.A.;
RT "Vascular endothelial growth factor: a new member of the platelet-
RT derived growth factor gene family.".
RT Biochem. Biophys. Res. Commun. 165:1198-1206(1989).
RN [3]
RP SEQUENCE OF 27-31.
RX MEDLINE: 89286596.
RA Ferrara N., Henzel W.J.;
RT "Putative follicular cells secrete a novel heparin-binding growth
RT factor specific for vascular endothelial cells.".
RT Biochem. Biophys. Res. Commun. 161:851-858(1989).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
-----
CC CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb.ch/announce
CC or send an email to license@isb.ch).
-----
DR EMBL: M32976; AAA30502.1; -
DR EMBL: M31836; AAA30804.1; -
DR EMBL: M33750; AAA30805.1; -
DR PIR: A33255; A33255.
DR PIR: A33787; A33787.
DR HSSP: P15692; 2VGH.
DR INTERPRO: IPR000072; -
DR PFAM: PF00341; PDGF_1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT SIGNAL 1 26
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAc...) (POTENTIAL).
FT VASAPLIC 139 183 MISSING (IN ISOFORM BETA).
FT VASAPLIC 184 184 R->K (IN ISOFORM BETA).
SQ SEQUENCE 130 AA; 22310 MW; EDBF903E46E24789 CRC64;

```

```

Query Match          55.0%;  Score 66;  DB 1;  Length 190;
Best Local Similarity 23.4%;  Pred. No. 0.013;
Matches 15;  Conservative 3;  Mismatches 2;  Indels 44;  Gaps 1;

OY      1 CECRRKKDRIKPE-----KCD 16
          |||||:::|:|

```

D5	127	CECPKDKAKQENPCGPCSEBRKHLEVPDPQICCKCKNTDSCRARQLELNEPRICRD	186
QY	17	KPRR	20
Db	187	KPRR	190

ID	VEGF_CAVPO	STANDARD;	PRT;	164 AA.
AC	P26617;			
DT	01-AUG-1992 (Rel. 23, Created)			
DT	01-AUG-1992 (Rel. 23, Last sequence update)			
DT	01-OCT-1996 (Rel. 34, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).			
GN	VEGF.			
OS	Cavia porcellus (Guinea pig).			
OC	Eukaryota; Metacoa; Chordata;			
OC	Mammalia; Eutheria; Rodentia; Hystriocognathi; Cavidae; Cavia.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RA	Bersse B.;			
RL	Submitted (xxx-1992) to the EMBL/Genbank/DBJ databases.			
CC	-1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.			
CC	-1- SUBUNIT: HOMODIMER. DISULFIDE-LINKED.			
CC	-1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).			
CC	-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.			
CC	-----			
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or_send_an_email_to_license@isb-sib.ch).			
CC	-----			
DR	EMBL; M84230; AAA37057.1; -			
DR	HSSP; P15692; 2VGH.			
DR	INTERPRO; IPR000072; -			
DR	PFAM; PF00341; PDGF; 1.			
DR	PROSITE; PS00249; PDGF_1; 1.			
DR	PROSITE; PS50278; PDGF_2; 1.			
FM	Mitogen; Growth factor; Glycoprotein.			
FT	DISULFID 25; 67			
FT	DISULFID 56; 101			
FT	DISULFID 60; 103			
FT	DISULFID 50- 50			
FT	DISULFID 59; 59			
FT	CARBOHYD 74; 74			
SO	SEQUENCE 164 AA; 19530 MW; 95B86A81A95DCA4 CRC64; N-LINKED (GLCNAc...) (POTENTIAL).			

```

Query Match          51.7%  Score 62;  DB 1;  Length 164;
Best Local Similarity 21.9%  Pred. No. 0.042;
Matches 14;  Conservative 4;  Mismatches 2;  Indels 44;  Gaps 1;

OY      1  CECRRPKNDRTKPE-----KCD 16
          |||||:::|
DB      101 CECRRPKKAKQENPCGSCSERKKHLFVQDPQTCCKSCRNMTDSCKAQLNELNERTCKCD 160
          |||||
OY      17  KPRR 20
          ||||
DB      161  KPRR 164
          :
RESULT 8
PLGF_HUMAN          STANDARD;      PRT;      170 AA.
ID      PLGF_HUMAN

```

AC P49763; 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 01-OCT-1996 (Rel. 40, Last annotation update)
 DE PLACENTA GROWTH FACTOR PRECURSOR (PLGF-1/PLGF-2).
 GN PGF OR PLGF.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A. (PLGF-1).
 RC TISSUE-PLACENTA;
 RX MEDLINE: 92021031.
 RA Maglione D., Guerriero G., Vagliento G., Delli-Bovi P., Persico M.G.;
 RT "Isolation of a human placenta cDNA coding for a protein related to
 RT the vascular permeability factor."
 RL Proc. Natl. Acad. Sci. U.S.A. 88:9267-9271(1991).
 RN [2]
 RP SEQUENCE FROM N.A. (PLGF-2).
 RC TISSUE-PLACENTA;
 RX MEDLINE: 94198032.
 RA Hauser S., Welch H.A.;
 RT "A heparin-binding form of placenta growth factor (PLGF-2) is
 RT expressed in human umbilical vein endothelial cells and in
 RT placenta."
 RL Growth Factors 9:259-268(1993).
 RN [3]
 RP SEQUENCE FROM N.A. (PLGF-2).
 RX MEDLINE: 93205407.
 RA Maglione D., Guerriero V., Vagliento G., Ferraro M.G., Aprelikova O.,
 RA Allito K., del Vecchio S., Lei K.-J., Chou J.Y., Persico M.G.;
 RT "Two alternative mRNAs coding for the angiogenic factor, placenta
 RT growth factor (PLGF), are transcribed from a single gene of
 RT chromosome 8:925-931(1993).
 RL [4]
 RP CHARACTERIZATION, AND SEQUENCE OF 19-24.
 RX MEDLINE: 95014370.
 RA Park J.E., Chen H.H., Winer J., Houck K.A., Ferrara N.;
 RT "Placenta growth factor. Potentiation of vascular endothelial growth
 RT factor bioactivity. In vitro and in vivo, and high affinity binding
 RT to Flt-1 but not to Flk-1/KDR."
 RL J. Biol. Chem. 269:25646-25654(1994).
 CC -1- FUNCTION: GROWTH FACTOR OF UNKNOWN FUNCTION. BINDS TO RECEPTOR
 CC VEGFR-1 (FLT1). THE LONGER FORM (PLGF-2) CAN ALSO BIND HEPARIN. IT
 CC IS ABLE TO POTENTIATE THE ACTION OF LOW LEVELS OF VEGF.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC -1- SUBCELLULAR LOCATION: BOTH FORMS ARE SECRETED BUT THE LONGER FORM
 CC APPEARS TO REMAIN CELL ATTACHED UNLESS RELEASED BY HEPARIN.
 CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS: PLGF-1 AND PLGF-2 (SHOWN HERE);
 CC ARE PRODUCED BY ALTERNATIVE SPLICING. PLGF-1 DIFFERS FROM PLGF-2
 CC IN LACKING A 21 RESIDUES SEGMENT IN THE C-TERMINAL SECTION WHICH
 CC ACTS AS A CELL RETENTION SIGNAL.
 CC -1- TISSUE SPECIFICITY: WHILE BOTH FORMS ARE PRESENT IN MOST PLACENTAL
 CC TISSUES, THE LONGER FORM IS SPECIFIC TO EARLY (8 WEEK) PLACENTA
 CC AND ONLY THE SHORTER FORM IS FOUND IN THE COLON AND MAMMARY
 CC CARCINOMAS.
 CC -1- PTM: N-GLYCOSYLATED.
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 CC EMBL: X54936; CA38698.1; -
 CC EMBL: A18411; CA01393.1; -
 CC EMBL: S72960; AAB30462.2; -
 CC HSSP: P15692; IVPF.
 CC MIM: 601121; -

DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF_1;
 DR PROSITE: PS00249; PDGF_1;
 DR PROSITE: PS50278; PDGF_2;
 KW Mitogen; Growth factor; Glycoprotein; Signal; Alternative splicing;
 KW Heparin-binding;
 FT SIGNAL 1 18
 FT CHAIN 1 170
 FT DISULFID 52 170
 FT DISULFID 83 94
 FT DISULFID 87 128
 FT DISULFID 77 130
 FT DISULFID 77 77
 FT CARBOHYD 86 86
 FT CARBOHYD 33 33
 FT CARBOHYD 101 101
 FT VARSPLIT 142 162
 FT CONFLICT 91 91
 SQ SEQUENCE 170 AA; 19325 MW; E47639AC59C0963F CRC64;
 OY 1 CECRPRKDKRTPEK 14
 DB 128 CECRPRKDKRTPEK 141
 Query Match 47.5%; Score 57; DB 1; Length 170;
 Best Local Similarity 57.1%; Pred. No. 0.21;
 Matches 8; Conservative 4; Mismatches 2; Indels 0; Gaps 0;
 RESULT 9
 ID ODO2 YEAST STANDARD; PRT; 463 AA.
 AC P19362;
 DT 01-NOV-1990 (Rel. 16, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 30-MAY-2000 (Rel. 39, Last annotation update)
 DE DIHYDROLIPOAMIDE SUCCINYLTRANSFERASE COMPONENT OF 2-OXOGLUTARATE
 DE DEHYDROGENASE COMPLEX, MITOCHONDRIAL PRECURSOR (EC 2.3.1.61) (E2).
 GN KGD2 OR YDR148C OR YD8358.05C
 OS Saccharomyces cerevisiae (Baker's yeast).
 OC Eukaryota; Fungi; Ascomycota; Saccharomycetes; Saccharomycetales;
 OC Saccharomycetaceae; Saccharomyces.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 90318388.
 RA Repetto B., Tzagoloff A.;
 RT "Structure and regulation of KGD2, the structural gene for yeast
 RT dihydrolipoil transsuccinylase."
 RL Mol. Cell. Biol. 10:4221-4232(1990).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN-S228C / AB972;
 RA Murphy L., Richards C., Harris D., Barrell B.G., Rajandream M.A.,
 RA Walsh S.V.;
 RT Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
 CC -1- FUNCTION: THE 2-OXOGLUTARATE DEHYDROGENASE COMPLEX CATALYZES THE
 CC OVERALL CONVERSION OF 2-OXOGLUTARATE TO SUCCINYL-COA & CO(2). IT
 CC CONTAINS MULTIPLE COPIES OF 3 ENZYMIC COMPONENTS: 2-OXOGLUTARATE
 CC DEHYDROGENASE (E1), DIHYDROLIPOAMIDE SUCCINYLTRANSFERASE (E2) &
 CC LIPOAMIDE DEHYDROGENASE (E3).
 CC -1- CATALYTIC ACTIVITY: SUCCINYL-COA + DIHYDROLIPOAMIDE = COA +
 CC S-SUCCINYLDIHYDROLIPOAMIDE.
 CC -1- COFACTOR: THE E2 COMPONENT CONTAINS ONE COVALENTLY-BOUND LIPOYL
 CC COFACTOR.
 CC -1- SUBCELLULAR LOCATION: MITOCHONDRIAL.
 CC -1- INDUCTION: TRANSCRIPTIONALLY REGULATED BY GLUCOSE AND ACTIVATED
 CC BY THE HAP2 AND HAP3 PROTEINS.
 CC -1- SIMILARITY: BELONGS TO THE 2-OXOACID DEHYDROGENASE FAMILY.
 CC -1- SIMILARITY: CONTAINS 1 LIPOYL-BINDING DOMAIN.
 CC -----
 CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its


```
CC use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/ or send an email to license@isb-sib.ch).
```

```
CC -----
```

```
DR EMBL; M34531; AAA34720.1; -
```

```
DR EMBL; Z50046; CAA90371.1; -
```

```
DR PIR; S1195; XURYSD.
```

```
DR HSSP; P10802; IENE.
```

```
DR SGD; S0002555; KGD2.
```

```
DR INTERPRO; IPRO000089; -
```

```
DR INTERPRO; IPRO01078; -
```

```
DR INTERPRO; IPRO03016; -
```

```
DR PFAM; PF00198; 2-oxoacid_dh; 1.
```

```
DR PFAM; PF00364; biotin_lipoyl; 1.
```

```
DR PROSITE; PS00189; LIPOYL; 1.
```

```
KW Glycoylasts; Transferase; Acyltransferase; Lipoyl; Mitochondrion;
```

```
KM Transit peptide; Repeat.
```

```
FT TRANSIT 1 ?
```

```
FT CHAIN ? 463
```

```
FT FT
```

```
FT DOMAIN 185 209
```

```
FT BINDING 114 114
```

```
FT ACT_SITE 435 435
```

```
FT ACT_SITE 439 439
```

```
FT CONFLICT 170 208
```

```
FT FT
```

```
FT CONFLICT 441 445
```

```
FT CONFLICT 460 463
```

```
SO SEQUENCE 463 AA; 50430 MW; C0FEBIDE385AE19 CRC64;
```

```
MLM -> CCYGDLKFAHTYLS (IN REF. 1).
```

```
REAYT -> EKLLS (IN REF. 1).
```

```
KRT (IN REF. 1).
```

```
-> HRKVSPOCKTVRKRLQKRKLQKRKKPLQKRKLQNK
```

```
Query Match 47.5%; Score 57; DB 1; Length 463;
```

```
Best Local Similarity 47.4%; Pred. No. 0.54;
```

```
Matches 9; Conservative 6; Mismatches 4; Indels 0; Gaps 0;
```

```
OY 2 ECRPKDKTKPEKCDKPRR 20
```

```
I III : I : I :
```

```
Db 195 EAAPKEVTEPKKADQPKK 213
```

```
RESULT 10
```

```
VEGF_CHICK ID VEGF_CHICK STANDARD; PTR; 216 AA.
```

```
AC P52582; O91420;
```

```
DT 01-OCT-1996 (Rel. 34, Created)
```

```
DT 15-JUL-1998 (Rel. 36, Last sequence update)
```

```
DT 15-DEC-1998 (Rel. 37, Last annotation update)
```

```
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
```

```
DE VEGF.
```

```
GN VEGF.
```

```
OS Gallus gallus (chicken), and
```

```
OS Coturnix coturnix japonica (Japanese quail).
```

```
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
```

```
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
```

```
OC Gallus.
```

```
RN [1]
```

```
RP SEQUENCE FROM N.A.
```

```
RC SPECIES-CHICKEN; TISSUE=HEART;
```

```
RA Takahashi T.;
```

```
RL Submitted (FEB-1998) to the EMBL/GenBank/DBJ databases.
```

```
RN [2]
```

```
RP SEQUENCE FROM N.A.
```

```
RC SPECIES-CHICKEN; TISSUE=EMBRYO;
```

```
RX MEDLINE; 96005007.
```

```
RA Flamme L., von Reutern M., Drexler H.C., Syed-Ali S., Risaui W.;
```

```
RT "Overexpression of vascular endothelial growth factor in the avian embryo induces hypervascularization and increased vascular permeability without alterations of embryonic pattern formation.";
```

```
RL Dev. Biol. 171:399-414(1995).
```

```
RN [3]
```

```

RP SEQUENCE OF 60-187 FROM N.A.
RC SPECIES=C.JAPONICA;
RX MEDLINE; 95301109.
RA Flamme I., Breier G., Risau W.;
RT "Vascular endothelial growth factor (VEGF) and VEGF receptor 2
RT (flk-1) are expressed during vasculogenesis and vascular
RT differentiation in the quail embryo.";
RL Dev. Biol. 169:699-712(1995).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH, INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC -1- ALTERNATIVE PRODUCTS: THREE ISOFORMS (VEGF-190, VEGF-146 AND VEGF-
CC 166) ARE PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME
CC GENE. THE LONGER FORM CONTAINS A BASIC INSERT WHICH ACTS AS A CELL
CC RETENTION SIGNAL.
CC -1- TISSUE SPECIFICITY: ABUNDANTLY AND EQUALLY EXPRESSED IN HEART AND
CC LIVER IN KIDNEY GLOMERULI, BRAIN AND YOLK SAC, VEGF-166 FORM IS
CC 5- TO 10- TIMES MORE ABUNDANT THAN THE VEGF-190 FORM.
CC -1- DEVELOPMENTAL STAGE: THE VEGF-166 FORM IS EXPRESSED EARLY AT DAY 1
CC AND IS DEGRADED DURING GASTRULATION. EXPRESSION OF THE VEGF-190
CC FORM IS DETECTABLE ONLY FROM DAY 2.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (see http://www.isb-sdb.ch/announce/
CC or send an email to license@sdb-sdb.ch).
CC -----
DR EMBL; AB011078; BAA24925.1; -
DR EMBL; S79680; AAB35371.1; -
DR HSSP; P15692; 2VGH.
DR INTERPRO; IPR000072; -
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT SIGNAL 1 26
FT CHAIN 27 216
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 77 77
FT DISULFID 86 86
FT CARBOHYD 101 101
FT VASAPLIC 143 142
FT VASAPLIC 143 146
FT VASAPLIC 166 166
FT VASAPLIC 167 210
SQ SEQUENCE 216 AA; 25203 MW; 82E669C2P6FC6DA7 CMC64;
Query Match 46.2%; Score 55.5; DB 1; Length 216;
Best Local Similarity 61.1%; Pred. No. 0.43;
Matches 11; Conservative 2; Mismatches 4; Indels 1; Gaps 1;
QY 1 CECRRKRD-RIRPEKCDK 17
DB 128 CDCRRKDKVKNQEKRSK 145
RESULT 11
ID LMB1_HUMAN
AC P07942;
DT 01-AUG-1988 (Rel. 08, Created)
DT 01-AUG-1988 (Rel. 08, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE LAMININ BETA-1 CHAIN PRECURSOR (LAMININ BI CHAIN).
LN LAMB1.
OS Homo sapiens (Human).

```

CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 90368768.
 RA Vuolteenaho R., Chow L.T., Trygvason K.;
 RT "Structure of the human laminin B1 chain gene.";
 RL J. Biol. Chem. 265:15611-15616(1990).
 RN [2]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 87280097.
 RA Pikkariemi T., Eddy R., Fukushima Y., Byers M., Shows T.,
 RA Pihlajaniemi T., Saraste M., Trygvason K.;
 RT "Human laminin B1 chain. A multidomain protein with gene (LAMB1)
 RT locus in the q22 region of chromosome 7.";
 RL J. Biol. Chem. 262:10454-10462(1987).
 RN [3]
 RP SEQUENCE OF 1276-1709 FROM N.A.
 RX MEDLINE: 88021029.
 RA Jaye M., Modi W.S., Ricca G.A., Mudd R., Chiu I.M., O'Brien S.J.,
 RA D'Oran W.N.;
 RT "Isolation of a cDNA clone for the human laminin-B1 chain and its
 RT gene localization.";
 RL Am. J. Hum. Genet. 41:605-615(1987).
 CC -1- FUNCTION: BINDING TO CELLS VIA A HIGH AFFINITY RECEPTOR, LAMININ
 CC IS THOUGHT TO MEDIATE THE ATTACHMENT, MIGRATION, & ORGANIZATION OF
 CC CELLS INTO TISSUES DURING EMBRYONIC DEVELOPMENT BY INTERACTING
 CC WITH OTHER EXTRACELLULAR MATRIX COMPONENTS.
 CC -1- SUBUNIT: LAMININ IS A COMPLEX GLYCOPROTEIN, CONSISTING OF THREE
 CC DIFFERENT POLYPEPTIDE CHAINS (ALPHA, BETA, GAMMA), WHICH ARE BOUND
 CC TO EACH OTHER BY DISULFIDE BONDS INTO A CROSS-SHAPED MOLECULE
 CC COMPRISING ONE LONG & THREE SHORT ARMS WITH GLOBULES AT EACH END.
 CC THE BETA-1 CHAIN IS A SUBUNIT OF LAMININ-1 (EHS LAMININ), LAMININ-
 CC 2 (MEROSIN), AND LAMININ-6 (K-LAMININ).
 CC -1- SUBCELLULAR LOCATION: EXTRACELLULAR.
 CC -1- TISSUE SPECIFICITY: FOUND IN THE BASEMENT MEMBRANES (MAJOR
 CC COMPONENT).
 CC -1- DOMAIN: THE ALPHA-HELICAL DOMAINS I AND II ARE THOUGHT TO INTERACT
 CC WITH OTHER LAMININ CHAINS TO FORM A COILED COIL STRUCTURE.
 CC -1- DOMAIN: DOMAINS VI AND IV ARE GLOBULAR.
 CC -1- SIMILARITY: CONTAINS 1 LAMININ N-TERMINAL DOMAIN (DOMAIN VI).
 CC -1- SIMILARITY: CONTAINS 12.5 LAMININ EGF-LIKE DOMAINS.
 CC -1- SIMILARITY: CONTAINS 1 LAMININ DOMAIN IV.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation-
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----

DR EMBL: M61939; AAA59486.1; JOINED.
 DR EMBL: M61940; AAA59486.1; JOINED.
 DR EMBL: M61941; AAA59486.1; JOINED.
 DR EMBL: M61942; AAA59486.1; JOINED.
 DR EMBL: M61943; AAA59486.1; JOINED.
 DR EMBL: M61944; AAA59486.1; JOINED.
 DR EMBL: M61945; AAA59486.1; JOINED.
 DR EMBL: M61946; AAA59486.1; JOINED.
 DR EMBL: M61947; AAA59486.1; JOINED.
 DR EMBL: M61948; AAA59486.1; JOINED.
 DR EMBL: M61949; AAA59486.1; JOINED.
 DR EMBL: M61950; AAA59486.1; JOINED.
 DR EMBL: M61950; AAA59486.1; JOINED.
 DR EMBL: M55370; AAA59485.1; JOINED.
 DR EMBL: M55378; AAA59485.1; JOINED.
 DR EMBL: M55365; AAA59485.1; JOINED.
 DR EMBL: M55371; AAA59485.1; JOINED.
 DR EMBL: M55372; AAA59485.1; JOINED.
 DR EMBL: M55373; AAA59485.1; JOINED.
 DR EMBL: M55374; AAA59485.1; JOINED.
 DR EMBL: M55375; AAA59485.1; JOINED.
 DR EMBL: M55376; AAA59485.1; JOINED.
 DR EMBL: M55344; AAA59485.1; JOINED.
 DR EMBL: M55345; AAA59485.1; JOINED.
 DR EMBL: M55346; AAA59485.1; JOINED.
 DR EMBL: M55347; AAA59485.1; JOINED.
 DR EMBL: M55348; AAA59485.1; JOINED.
 DR EMBL: M55349; AAA59485.1; JOINED.
 DR EMBL: M55350; AAA59485.1; JOINED.
 DR EMBL: M55351; AAA59485.1; JOINED.
 DR EMBL: M55352; AAA59485.1; JOINED.
 DR EMBL: M55353; AAA59485.1; JOINED.
 DR EMBL: M55355; AAA59485.1; JOINED.
 DR EMBL: M55356; AAA59485.1; JOINED.
 DR EMBL: M55357; AAA59485.1; JOINED.
 DR EMBL: M55358; AAA59485.1; JOINED.
 DR EMBL: M55359; AAA59485.1; JOINED.
 DR EMBL: M55360; AAA59485.1; JOINED.
 DR EMBL: M55361; AAA59485.1; JOINED.
 DR EMBL: M55362; AAA59485.1; JOINED.
 DR EMBL: M55363; AAA59485.1; JOINED.
 DR EMBL: M55364; AAA59485.1; JOINED.
 DR EMBL: M55366; AAA59485.1; JOINED.
 DR EMBL: M55367; AAA59485.1; JOINED.
 DR EMBL: M55368; AAA59485.1; JOINED.
 DR EMBL: M55369; AAA59485.1; JOINED.
 DR EMBL: M61916; AAA59482.1; JOINED.
 DR EMBL: M20206; AAA59487.1; JOINED.
 DR PIR: S13547; MMHUB1.
 DR HSSP: P01543; IRHP.
 DR MIM: 150240; -.
 DR INTERPRO: IPR000561; -.
 DR INTERPRO: IPR001866; -.
 DR INTERPRO: IPR002049; -.
 DR PFAM: PF00053; 'laminin_EGF_13'.
 DR PFAM: PF00055; 'laminin_Nterm_1'.
 DR PRINTS: PR00011; EGF-LAMININ.
 DR PROSITE: PS00022; EGF_1_9.
 DR PROSITE: PS01866; EGF_2_2.
 DR PROSITE: PS01246; LAMININ_TYPE_EGF_11.
 KW Glycoprotein; Basement membrane; Extracellular matrix; Coiled coil;
 KW Laminin EGF-like domain; Cell adhesion; Repeat; Signal.
 FT SIGNAL 1 21
 FT CHAIN 22 1786 LAMININ BETA-1 CHAIN.
 FT DOMAIN 22 270 LAMININ N-TERMINAL (DOMAIN VI).
 FT DOMAIN 271 540 4.5 X LAMININ EGF-LIKE REPEATS (DOMAIN
 FT V).
 FT DOMAIN 271 334 LAMININ EGF-LIKE 1.
 FT DOMAIN 335 397 LAMININ EGF-LIKE 2.
 FT DOMAIN 398 457 LAMININ EGF-LIKE 3.
 FT DOMAIN 458 509 LAMININ EGF-LIKE 4.
 FT DOMAIN 510 540 LAMININ EGF-LIKE 5 (INCOMPLETE).
 FT DOMAIN 541 771 LAMININ DOMAIN IV.
 FT DOMAIN 772 1178 8 X LAMININ EGF-LIKE REPEATS (DOMAIN

```

FT DOMAIN 773 820 111).
FT DOMAIN 821 866 LAMININ EGF-LIKE 6.
FT DOMAIN 867 916 LAMININ EGF-LIKE 7.
FT DOMAIN 917 975 LAMININ EGF-LIKE 8.
FT DOMAIN 976 1027 LAMININ EGF-LIKE 9.
FT DOMAIN 1028 1083 LAMININ EGF-LIKE 10.
FT DOMAIN 1084 1131 LAMININ EGF-LIKE 11.
FT DOMAIN 1132 1178 LAMININ EGF-LIKE 12.
FT DOMAIN 1179 1397 LAMININ EGF-LIKE 13.
FT DOMAIN 1398 1430 DOMAIN II.
FT DOMAIN 1431 1786 DOMAIN I.
FT DOMAIN 1216 1315 COILED COIL (POTENTIAL).
FT DOMAIN 1353 1388 COILED COIL (POTENTIAL).
FT DOMAIN 1442 1781 COILED COIL (POTENTIAL).
FT DISULFID 271 280 BY SIMILARITY.
FT DISULFID 273 298 BY SIMILARITY.
FT DISULFID 300 309 BY SIMILARITY.
FT DISULFID 312 332 BY SIMILARITY.
FT DISULFID 335 344 BY SIMILARITY.
FT DISULFID 337 362 BY SIMILARITY.
FT DISULFID 365 374 BY SIMILARITY.
FT DISULFID 377 395 BY SIMILARITY.
FT DISULFID 398 411 BY SIMILARITY.
FT DISULFID 400 426 BY SIMILARITY.
FT DISULFID 428 437 BY SIMILARITY.
FT DISULFID 440 455 BY SIMILARITY.
FT DISULFID 458 472 BY SIMILARITY.
FT DISULFID 460 479 BY SIMILARITY.
FT DISULFID 481 490 BY SIMILARITY.
FT DISULFID 493 507 BY SIMILARITY.
FT DISULFID 773 785 BY SIMILARITY.
FT DISULFID 775 792 BY SIMILARITY.
FT DISULFID 794 803 BY SIMILARITY.
FT DISULFID 806 818 BY SIMILARITY.
FT DISULFID 821 833 BY SIMILARITY.
FT DISULFID 823 840 BY SIMILARITY.
FT DISULFID 842 851 BY SIMILARITY.
FT DISULFID 854 864 BY SIMILARITY.
FT DISULFID 867 876 BY SIMILARITY.
FT DISULFID 869 883 BY SIMILARITY.
FT DISULFID 886 895 BY SIMILARITY.
FT DISULFID 898 914 BY SIMILARITY.
FT DISULFID 917 933 BY SIMILARITY.
FT DISULFID 919 944 BY SIMILARITY.
FT DISULFID 946 955 BY SIMILARITY.

Query Match 45.8%; Score 55; DB 1; Length 1786;
Best Local Similarity 52.9%; Pred. No. 3.5;
Matches 9; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

```

```

QY 1 CECRPRKDRTPKCDK 17
DB 976 CQCHNNDITDPEACDK 992

RESULT 12
LMB1_MOUSE STANDARD; PRT; 1786 AA.
AC P02469;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-JUL-1988 (Rel. 11, Last sequence update)
DT 15-JUL-1988 (Rel. 36, Last annotation update)
DE LAMININ BETA-1 CHAIN PRECURSOR (LAMININ BI CHAIN).
GN LAMB1-1 OR LAMB-1.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 87147212.
RA Sasaki M., Kato S., Kohno K., Martin G.R., Yamada Y.;
RT "Sequence of the cDNA encoding the laminin BI chain reveals a

```

```

RT multidomain protein containing cysteine-rich repeats."
RL Proc. Natl. Acad. Sci. U.S.A. 84:935-939(1987).
RN [2]
RP SEQUENCE OF 1292-1786 FROM N.A.
RX MEDLINE; 85051302.
RA Barlow D.P., Green N.M., Kurkinen M., Hogan B.L.M.;
RT "Sequencing of laminin B chain cDNAs reveals C-terminal regions of
RT coiled-coil alpha-helix."
RL EMBO J. 3:2355-2362(1984).
RN [3]
RP SEQUENCE OF 165-172; 539-547 AND 712-719.
RC STRAIN-BALB/C; TISSUE-ENDOTHELIAL CELLS;
RX MEDLINE; 97363207.
RA Friesler M., Noeckel H., Pausch F., Roeder C., Hahn A., Deutzmann R.,
RT "Cloning of the mouse laminin alpha 4 cDNA. Expression in a subset of
RT endothelium."
RL Eur. J. Biochem. 246:727-735(1997).
CC -1- FUNCTION: BINDING TO CELLS VIA A HIGH AFFINITY RECEPTOR, LAMININ
CC IS THOUGHT TO MEDATE THE ATTACHMENT, MIGRATION, & ORGANIZATION OF
CC CELLS INTO TISSUES DURING EMBRYONIC DEVELOPMENT BY INTERACTING
CC WITH OTHER EXTRACELLULAR MATRIX COMPONENTS.
CC -1- SUBUNIT: LAMININ IS A COMPLEX GLYCOPROTEIN, CONSISTING OF THREE
CC DIFFERENT POLYPEPTIDE CHAINS (ALPHA, BETA, GAMMA), WHICH ARE BOUND
CC TO EACH OTHER BY DISULFIDE BONDS INTO A CROSS-SHAPED MOLECULE
CC COMPRISING ONE LONG & THREE SHORT ARMS WITH GLOBULES AT EACH END.
CC THE BETA-1 CHAIN IS A SUBUNIT OF LAMININ-1 (EHS LAMININ), LAMININ-
CC 2 (MEROSIN), AND LAMININ-6 (K-LAMININ).
CC -1- SUBCELLULAR LOCATION: EXTRACELLULAR.
CC -1- TISSUE SPECIFICITY: FOUND IN THE BASEMENT MEMBRANES (MAJOR
CC COMPONENT).
CC -1- SIMILARITY: CONTAINS 1 LAMININ N-TERMINAL DOMAIN (DOMAIN VI).
CC -1- SIMILARITY: CONTAINS 12.5 LAMININ EGF-LIKE DOMAINS.
CC -1- SIMILARITY: CONTAINS 1 LAMININ DOMAIN IV.
CC -----
CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@sib-sib.ch).
CC -----
DR EMBL; M15525; AAA39407.1; ALT_INIT.
DR EMBL; X05212; CAA28839.1; -.
DR PIR; A26413; MMASB1.
DR HSP; P03069; 12IM.
DR MGD; MGI:96743; LAMB1-1.
DR INTERPRO; IPR000561; -.
DR INTERPRO; IPR001866; -.
DR INTERPRO; IPR002049; -.
DR DR PFAM; PF00053; laminin_EGF_13.
DR PRINTS; PR00011; EGF_LAMININ.
DR PROSITE; PS00023; EGF_1; 9.
DR PROSITE; PS01865; EGF_2; 2.
DR PROSITE; PS01246; LAMININ_TYPE_EGF; 11.
DR KW Glycoprotein; Basement membrane; Extracellular matrix; Coiled coil;
DR Laminin EGF-like domain; Cell adhesion; Repeat; Signal.
FT SIGNAL 1; 21
FT CHAIN 22; 1786
FT DOMAIN 22; 270
FT DOMAIN 271; 540
FT 271; 540
FT 271; 334
FT 335; 397 LAMININ EGF-LIKE 1.
FT 398; 457 LAMININ EGF-LIKE 2.
FT 458; 509 LAMININ EGF-LIKE 3.
FT 510; 540 LAMININ EGF-LIKE 4.
FT 541; 772 LAMININ EGF-LIKE 5 (INCOMPLETE).
FT 773; 1178 LAMININ EGF-LIKE IV.
FT 1179; 1786 8 X LAMININ EGF-LIKE REPEATS (DOMAIN
FT 1787; 1786 III).
FT 1787; 820 LAMININ EGF-LIKE 6.

```

```

FT DOMAIN 821 866 LAMININ EGF-LIKE 7.
FT DOMAIN 867 916 LAMININ EGF-LIKE 8.
FT DOMAIN 917 975 LAMININ EGF-LIKE 9.
FT DOMAIN 976 1027 LAMININ EGF-LIKE 10.
FT DOMAIN 1028 1083 LAMININ EGF-LIKE 11.
FT DOMAIN 1084 1131 LAMININ EGF-LIKE 12.
FT DOMAIN 1132 1178 LAMININ EGF-LIKE 13.
FT DOMAIN 1179 1397 DOMAIN II.
FT DOMAIN 1398 1430 DOMAIN ALPHA.
FT DOMAIN 1431 1786 DOMAIN I.
FT DOMAIN 1216 1315 COILED COIL (POTENTIAL).
FT DOMAIN 1368 1388 COILED COIL (POTENTIAL).
FT DOMAIN 1448 1778 COILED COIL (POTENTIAL).
FT DISULFID 271 280 BY SIMILARITY.
FT DISULFID 273 298 BY SIMILARITY.
FT DISULFID 300 309 BY SIMILARITY.
FT DISULFID 312 332 BY SIMILARITY.
FT DISULFID 335 344 BY SIMILARITY.
FT DISULFID 337 362 BY SIMILARITY.
FT DISULFID 365 374 BY SIMILARITY.
FT DISULFID 377 395 BY SIMILARITY.
FT DISULFID 398 411 BY SIMILARITY.
FT DISULFID 400 426 BY SIMILARITY.
FT DISULFID 428 437 BY SIMILARITY.
FT DISULFID 440 455 BY SIMILARITY.
FT DISULFID 458 472 BY SIMILARITY.
FT DISULFID 460 479 BY SIMILARITY.
FT DISULFID 481 490 BY SIMILARITY.
FT DISULFID 493 507 BY SIMILARITY.
FT DISULFID 773 785 BY SIMILARITY.
FT DISULFID 775 792 BY SIMILARITY.
FT DISULFID 794 803 BY SIMILARITY.
FT DISULFID 806 818 BY SIMILARITY.
FT DISULFID 821 833 BY SIMILARITY.
FT DISULFID 823 840 BY SIMILARITY.
FT DISULFID 842 851 BY SIMILARITY.
FT DISULFID 854 864 BY SIMILARITY.
FT DISULFID 867 876 BY SIMILARITY.
FT DISULFID 869 883 BY SIMILARITY.
FT DISULFID 886 895 BY SIMILARITY.
FT DISULFID 898 914 BY SIMILARITY.
FT DISULFID 917 933 BY SIMILARITY.
FT DISULFID 919 944 BY SIMILARITY.
FT DISULFID 946 955 BY SIMILARITY.
FT DISULFID 958 973 BY SIMILARITY.
FT DISULFID 976 990 BY SIMILARITY.
FT DISULFID 978 997 BY SIMILARITY.
FT DISULFID 1000 1009 BY SIMILARITY.
FT DISULFID 1012 1025 BY SIMILARITY.
FT DISULFID 1084 1096 BY SIMILARITY.
FT DISULFID 1086 1103 BY SIMILARITY.
FT DISULFID 1105 1114 BY SIMILARITY.
FT DISULFID 1117 1129 BY SIMILARITY.
FT DISULFID 1132 1144 BY SIMILARITY.
FT DISULFID 1134 1151 BY SIMILARITY.
FT DISULFID 1153 1162 BY SIMILARITY.
FT DISULFID 1165 1176 BY SIMILARITY.
FT DISULFID 1179 1179 INTERCHAIN (PROBABLE).
FT DISULFID 1182 1182 INTERCHAIN (PROBABLE).
FT DISULFID 1785 1785 INTERCHAIN (PROBABLE).
FT CARBOHYD 120 120 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 356 356 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 519 519 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 677 677 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1041 1041 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1195 1195 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1279 1279 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1336 1336 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1343 1343 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1467 1467 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1533 1533 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1542 1542 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 1643 1643 N-LINKED (GLCNAC. . .) (POTENTIAL).

```

```

FT CONFLICT 1531 1534 SCNA -> MEMB (IN REF. 2).
FT CONFLICT 1749 1749 D -> N (IN REF. 2).
SQ SEQUENCE 1796 AA; 196904 MW; 846671B7BF4A474 CRC64;

Query Match 45.8%; Score 55; DB 1; Length 1786;
Best Local Similarity 52.9%; Pred. No. 3.5;
Matches 9; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY 1 CECRPKDKRIKPEKDK 17
Db 976 CQCHNHDITDPKCDK 992

RESULT 13
VEGB_HUMAN STANDARD; PRT; 188 AA.
ID VEGB_HUMAN
AC P49765;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 15-DEC-1998 (Rel. 37, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR B PRECURSOR (VEGF-B) (VEGF RELATED
DE FACTOR).
GN VEGFB OR VRF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 96197355.
RA Olofsson B., Patjusela K., Kaipainen A., von Euler G., Joukov V.,
RA Saksela O., Orpana A., Pettersson R.F., Allitalo K., Eriksson U.;
RT "vascular endothelial growth factor B, a novel growth factor for
RT endothelial cells."
RT Proc. Natl. Acad. Sci. U.S.A. 93:2576-2581(1996).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE; 97077124.
RA Grimmond S., Lagercrantz J., Drinkwater C., Silins G., Townson S.,
RA Pollock P., Gotley D., Carson E., Rakar S., Nordenskjold M., Ward L.,
RA Hayward N., Weber G.;
RT "Cloning and characterization of a novel human gene related to
RT vascular endothelial growth factor."
RT Genome Res. 6:124-131(1996).
CC -1- SUBUNIT: GROWTH FACTOR FOR ENDOTHELIAL CELLS. BINDS HEPARIN.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED. CAN ALSO FORM HETERODIMER
CC WITH VEGF.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN.
CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALL TISSUES EXCEPT LIVER.
CC HIGHEST LEVELS FOUND IN HEART, SKELETAL MUSCLE AND PANCREAS.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; U48801; AAB06274.1; -
DR EMBL; U43369; AAA91463.1; -
DR HSSP; P15692; IVPF.
DR MIM; 601398; -
DR INTERPRO; IPR006072; -
DR PFM; PF00341; PDGF_1;
DR PROSITE; PS00245; PDGF_1;
DR PROSITE; PS0278; PDGF_2;
DR Mitogen; Growth factor; Signal; Heparin-binding.
FT SIGNAL 1 21 POTENTIAL.
FT CHAIN 22 188 VASCULAR ENDOTHELIAL GROWTH FACTOR B.
SQ SEQUENCE 188 AA; 21261 MW; F04654D5A3727194 CRC64;

```

Query Match 43.8%; Score 52.5; DB 1; Length 188;

Best Local Similarity 57.9%; Pred. No. 0.99; Matches 11; Conservative 1; Mismatches 6; Indels 1; Gaps 1;

QY 1 CECRPPKDRTPKCDKPR 19

DB 122 CECRPPK-KDSAVKPDSPR 139

RESULT 14

VEGF_MOUSE STANDARD; PRT; 188 AA.

AC P49766; 01-OCT-1996 (Rel. 34, Created)

DT 01-OCT-1996 (Rel. 34, Last sequence update)

DT 15-DEC-1998 (Rel. 37, Last annotation update)

DE VASCULAR ENDOTHELIAL GROWTH FACTOR B PRECURSOR (VEGF-B) (VASCULAR

DE ENDOTHELIAL GROWTH FACTOR RELATED PROTEIN) (VRF).

GN VEGF OR VRF.

OC Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

RN [1]

RP SEQUENCE FROM N.A.

RC TISSUE=HEART;

RX MEDLINE: 96197355.

RA Olofinson B., Pajusola K., Kaipainen A., von Euler G., Joukov V.,

RA Saksela O., Orpana A., Pettersson R.F., Alltalo K., Eriksson U.,

RT "Vascular endothelial growth factor B, a novel growth factor for

RT endothelial cells.";

RT Proc. Natl. Acad. Sci. U.S.A. 93:2576-2581(1996).

RL [2]

RP SEQUENCE FROM N.A.

RC TISSUE=BRAIN;

RX MEDLINE: 96183052.

RA Tomson S., Lagercrantz J., Grimond S., Sillis G.,

RA Nordensjoeld M., Weber G., Hayward N.K.,

RT "Characterization of the murine VEGF-related factor gene.";

RL Biochem. Biophys. Res. Commun. 220:922-928(1996).

CC -1- FUNCTION: GROWTH FACTOR FOR ENDOTHELIAL CELLS. BINDS HEPARIN.

CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED. CAN ALSO FORM HETERODIMER

CC WITH VEGF.

CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR

CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN.

CC -1- TISSUE SPECIFICITY: ABUNDANTLY EXPRESSED IN HEART, BRAIN, KIDNEY

CC AND SKELETAL MUSCLE.

CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

CC

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>

CC or send an email to [license@isb-sid.ch](mailto:license@isb-sib.ch)).

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

Query Match 43.8%; Score 52.5; DB 1; Length 188;

Best Local Similarity 57.9%; Pred. No. 0.99; Matches 11; Conservative 1; Mismatches 6; Indels 1; Gaps 1;

QY 1 CECRPPKDRTPKCDKPR 19

DB 122 CECRPPK-KESAVKPDSPR 139

RESULT 15

VEGF_MOUSE STANDARD; PRT; 133 AA.

AC P52584; 01-OCT-1996 (Rel. 34, Created)

DT 01-OCT-1996 (Rel. 34, Last sequence update)

DT 15-JUL-1999 (Rel. 38, Last annotation update)

DE VASCULAR ENDOTHELIAL GROWTH FACTOR HOMOLOG PRECURSOR.

GN A2R.

OS Orf virus (strain NZ2) (OV NZ-2).

OC Viruses; dsDNA viruses, no RNA stage; Chordopoxvirinae;

OC Parapoxvirus.

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE: 94076465.

RA Lytle D.J., Fraser K.M., Fleming S.B., Mercer A.A., Robinson A.J.,

RT "Homologs of vascular endothelial growth factor are encoded by the

RT poxvirus orf virus.";

RT J. Virol. 68:84-92(1994).

CC -1- FUNCTION: INDUCES ENDOTHELIAL PROLIFERATION.

CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).

CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

CC

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See [http://www.isb-sib-sib.ch](http://www.isb-sib.ch/announce/)).

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

CC

Query Match 42.5%; Score 51; DB 1; Length 133;

Best Local Similarity 45.0%; Pred. No. 1.2; Matches 9; Conservative 2; Mismatches 9; Indels 0; Gaps 0;

QY 1 CECRPPKDRTPKCDKPR 20

DB 112 CDCRPPRTTPTTTPRR 131

Search completed: November 9, 2000, 15:40:18

Job time: 571 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:39:34 ; Search time 106.63 Seconds
(without alignments)
17.514 Million cell updates/sec

Title: US-09-266-543-4
Perfect score: 120
Sequence: 1 CECRPRKDRTPKCDKPRR 20

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues
Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: SP archaea:*
2: SP bacteria:*
3: SP fungi:*
4: SP human:*
5: SP_invertebrate:*
6: SP_mammal:*
7: SP_mhc:*
8: SP_organelle:*
9: SP_phage:*
10: SP_plant:*
11: SP_rodent:*
12: SP_virus:*
13: SP_vertebrate:*
14: SP_unclassified:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	120	100.0	146	11	09XG6 rattus norv
2	104	86.7	147	4	09UH58 homo sapien
3	86.5	72.1	148	13	042571 xenopus lae
4	83	69.2	102	11	063672 rattus norv
5	83	69.2	214	11	09XG7 rattus norv
6	72	60.0	190	11	09XG39 spalax leuc
7	71.5	59.6	144	13	073822 brachydanto
8	70	58.3	149	4	09Y6S8 homo sapien
9	69	57.5	190	6	09XSF3 canis famli
10	69	57.5	191	4	073875 canis famli
11	67	55.8	102	6	09XSF4 macaca fasc
12	67	55.8	208	6	09XSF1 canis famli
13	67	55.8	209	4	060720 homo sapien
14	67	55.8	214	6	09XSF5 canis famli
15	67	55.0	254	4	016889 homo sapien
16	66	55.0	190	6	077643 canis famli
17	65	54.2	174	4	09UL23 homo sapien
18	55.5	46.2	188	6	09X548 bos taurus
19	55	45.8	193	6	09X549 bos taurus

20	53.5	44.6	257	5	09VH54 drosophila
21	53	44.2	207	4	016528 mus musculu
22	52	43.3	1292	13	057484 gallus galli
23	51	42.5	67	5	023779 chironomus
24	51	42.5	143	5	023765 chironomus
25	51	42.5	207	11	064290 mus musculu
26	50.5	42.1	77	6	P79199 ovis aries
27	50.5	42.1	194	13	042572 xenopus lae
28	50	41.7	293	10	09STN7 arabidopsis
29	50	41.7	752	12	083927 undulatif
30	49.5	41.2	150	11	054881 rattus norv
31	49.5	41.2	580	4	000634 homo sapien
32	49.5	41.2	1664	5	09YV02 caenorhabd
33	49.5	41.2	1704	5	094446 chironomus
34	48.5	40.4	110	11	088911 rattus norv
35	48.5	40.4	244	13	013128 brachydanto
36	48.5	40.4	602	13	042203 brachydanto
37	48.5	40.4	603	11	009118 mus musculu
38	48.5	40.4	603	13	042140 brachydanto
39	48.5	40.4	604	4	095631 homo sapien
40	48.5	40.4	604	11	090Y50 mus musculu
41	48.5	40.4	1698	5	094438 chironomus
42	47	39.2	116	11	035485 rattus norv
43	47	39.2	158	11	063434 rattus norv
44	47	39.2	314	5	023773 chironomus
45	47	39.2	827	10	092S85 arabidopsis

ALIGNMENTS

RESULT 1	PRELIMINARY:	PRT:	146 AA.
ID 09XG6	09XG6		
AC 09XG6	09XG6		
DT 01-MAY-2000 (TREMblrel. 13, Created)			
DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)			
DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)			
DE VASCULAR ENDOTHELIAL GROWTH FACTOR-A120.			
OS Rattus norvegicus (Rat).			
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.			
RN [1]			
RP SEQUENCE FROM N.A.			
RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;			
RT "Developmental expression of vascular endothelial growth factor-A			
RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat			
RT masseter muscle."			
RL Submitted (DEC-1999) to the EMBL/Genbank/DBJ databases.			
DR EMBL: AF215726; ANF19212.1; -.			
DR INTERPRO: IPR003072; -.			
DR PFM: PFM0341; 3DGF; 1.			
DR PROSITE: PS00243; PDGF; 1.			
SQ SEQUENCE 146 AA; 17161 MW; AF92979C38EF532A CRC64;			
Query Match	100.0%;	Score 120;	DB 11;
Best Local Similarity	100.0%;	Pred. No. 1.4e-10;	Length 146;
Matches 20;	Conservative 0;	Mismatches 0;	Indels 0;
Gaps 0;			
QY 1 CECRPRKDRTPKCDKPRR 20			
DB 127 CECRPRKDRTPKCDKPRR 146			
RESULT 2	PRELIMINARY:	PRT:	147 AA.
ID 09UH58	09UH58		
AC 09UH58	09UH58		
DT 01-MAY-2000 (TREMblrel. 13, Created)			
DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)			
DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)			
DE VASCULAR ENDOTHELIAL GROWTH FACTOR ISOFORM 121 PRECURSOR.			

OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Sato J.D., Whitney R.G.;
 RT "Human CDNA for vascular endothelial growth factor isoform VEGF121.";
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AF214570; AAF19659.1; -
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 KW Signal.
 FT SIGNAL.
 SO SEQUENCE 1 26
 POTENTIAL.
 DD4D694249BED6 CRC64;

Query Match 86.7%; Score 104; DB 4; Length 147;
 Best Local Similarity 85.0%; Pred. No. 3.2e-08;
 Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
 QY 1 CECRPKDRTPKCKPRR 20
 DB 128 CECRPKDRARQKCKPRR 147

RESULT 3
 ID 042571 PRELIMINARY; PRT; 148 AA.
 AC 042571.
 DT 01-JAN-1998 (TREMBLrel. 05, Created)
 DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
 DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR 122.
 GN VEGF.
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;
 OC Xenopodidae; Xenopus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;
 RL Submitted (JUN-1997) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AF008593; AAB63679.1; -
 DR HSSP: P15692; IVP.
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 DR PRODOM: PD001629; -; 1
 SO SEQUENCE 148 AA; 17234 MW; 4AD153CA2F8B1E95 CRC64;

Query Match 72.1%; Score 86.5; DB 13; Length 148;
 Best Local Similarity 71.4%; Pred. No. 1.2e-05;
 Matches 15; Conservative 4; Mismatches 1; Indels 1; Gaps 1;
 QY 1 CECRPKDRTPKCKPRR 20
 DB 128 CECRPKREKSKCKPRR 148

RESULT 4
 ID 063672 PRELIMINARY; PRT; 102 AA.
 AC 063672; 063882;
 DT 01-NOV-1996 (TREMBLrel. 01, Created)
 DT 01-NOV-1998 (TREMBLrel. 08, Last sequence update)
 DT 01-MAY-2000 (TREMBLrel. 13, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF188) (FRAGMENT).
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 RN [1]

RP SEQUENCE FROM N.A.
 RC STRAIN-CD; TISSUE-LUNG;
 RA Kim I., Ryan A., Rohan R., Aguilar S., Amano S., Brown L.F.,
 RA Miller J., Adams A.P.;
 RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE OF 29-52 FROM N.A.
 RC STRAIN-SPRAGUE-DAWLEY; TISSUE-BRAIN;
 RA Yakovlev A.G., Faden A.I.;
 RL Submitted (JUL-1993) to the EMBL/GenBank/DBJ databases.
 RN [3]
 RP SEQUENCE OF 29-51 FROM N.A.
 RA MEDLINE; 93343939.
 RA Ladoux A., Frelon C.;
 RT "Expression of vascular endothelial growth factor by cultured
 endothelial cells from brain microvessels."
 RL Biochem. Biophys. Res. Commun. 194:799-803(1993).
 DR EMBL: AF062644; AAC16448.1; -
 DR EMBL: L20913; AAA42334.1; -
 DR EMBL: S64321; CAB32322.1; -
 DR HSSP: P15692; 2VGH.
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR NON_TER 1;
 FT NON_TER 1;
 SO SEQUENCE 102 AA; 12163 MW; CDFC6A6914D07D2B CRC64;

Query Match 69.2%; Score 83; DB 11; Length 102;
 Best Local Similarity 100.0%; Pred. No. 2.8e-05;
 Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 CECRPKDRTPKCKPRR 14
 DB 15 CECRPKDRTPKCKPRR 28

RESULT 5
 ID 090XG7 PRELIMINARY; PRT; 214 AA.
 AC 090XG7;
 DT 01-MAY-2000 (TREMBLrel. 13, Created)
 DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
 DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR-A188.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;
 RT "Developmental expression of vascular endothelial growth factor-A
 (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat
 masseter muscle."
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AF215725; AAF19211.1; -
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00245; PDGF; 1.
 SO SEQUENCE 214 AA; 25239 MW; 60FBB876F5304946 CRC64;

Query Match 69.2%; Score 83; DB 11; Length 214;
 Best Local Similarity 100.0%; Pred. No. 5.3e-05;
 Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 CECRPKDRTPKCKPRR 14
 DB 127 CECRPKDRTPKCKPRR 140

RESULT 6
 ID 090X39 PRELIMINARY; PRT; 190 AA.
 AC 090X39

AC 090X39;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Spalacinae;
OC Spalax.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 99313148.
RA Avivi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;
RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax
ehrenbergi: the role of vascular endothelial growth factor."
RL EMBL; AF166236; AAD56245.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22408 MW; 2228383BC65F0BFE CRC64;

Query Match 60.0%; Score 72; DB 11; Length 190;
Best Local Similarity 26.6%; Pred. No. 0.002;
Matches 17; Conservative 2; Mismatches 1; Indels 44; Gaps 1;

OY 1 CECRPRKDRTPKE-----KCD 16
DB 127 CECRPRKDRTPKEPCSESRKHLFVDPQCKSCCKNTDSCKARQLEINERTCRCD 186
OY 17 KPRR 20
DB 187 KPRR 190

RESULT 7
ID 073822 PRELIMINARY; PRT; 144 AA.
AC 09XSF3;
DT 01-AUG-1998 (TREMBLrel. 07, Created)
DT 01-AUG-1998 (TREMBLrel. 07, last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 121 ISOFORM.
GN VEGF.
OS Brachydanio rerio (zebrafish) (Zebra danio).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Osteichthyes;
OC Cypriniformes; Cyprinidae; Cyprinidae; Rasbora; Danio.
RN [1]
RP SEQUENCE FROM N.A.
RA Liang D., Ge R.;
RL Submitted (Apr-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF059661; AAC14713.1; -.
DR HSSP; P15692; 1YPE.
DR INTERPRO: IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 144 AA; 16479 MW; 303E6A7407AA0832 CRC64;

Query Match 59.6%; Score 71.5; DB 13; Length 144;
Best Local Similarity 60.0%; Pred. No. 0.0018;
Matches 12; Conservative 4; Mismatches 3; Indels 1; Gaps 1;

OY 1 CECRPRKDRTPKECKDKPR 19
DB 125 CECRPRKDRTPKECKDKPR 144

RESULT 8

OY6S8
ID 09Y6S8 PRELIMINARY; PRT; 149 AA.
AC 09Y6S8;
DT 01-NOV-1999 (TREMBLrel. 12, Created)
DT 01-NOV-1999 (TREMBLrel. 12, last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, last annotation update)
DE PIGF.
GN PIGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RA Rowen L., Madan A., Qin S., Abbasi N., Dors M., Dickhoff R., James R.,
RA Loretz C., Lasky S., Madan A., Prescott S., Ratcliffe A., Shaffer T.,
RA Hood L.;
RT "Sequencing of human chromosome 14."
RL Submitted (MAY-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AC006530; AAD30179.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 149 AA; 16725 MW; 0B69DC4F84518352 CRC64;

Query Match 58.3%; Score 70; DB 4; Length 149;
Best Local Similarity 54.5%; Pred. No. 0.0031;
Matches 12; Conservative 4; Mismatches 4; Indels 2; Gaps 1;

OY 1 CECRPRKDRTPKECKDK--PRR 20
DB 128 CECRPRKDRTPKECKDK--PRR 149

RESULT 9
ID 09XSF3 PRELIMINARY; PRT; 190 AA.
AC 09XSF3;
DT 01-NOV-1999 (TREMBLrel. 12, Created)
DT 01-NOV-1999 (TREMBLrel. 12, last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 164.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RA Tissue-Heart;
RA Jijiang L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF133248; AAD29682.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22292 MW; 2053500BC9085CE0 CRC64;

Query Match 57.5%; Score 69; DB 6; Length 190;
Best Local Similarity 25.0%; Pred. No. 0.0054;
Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;

OY 1 CECRPRKDRTPKE-----KCD 16
DB 127 CECRPRKDRTPKEPCSESRKHLFVDPQCKSCCKNTDSCKARQLEINERTCRCD 186
OY 17 KPRR 20
DB 187 KPRR 190

RESULT 10
075875

ID 075875 PRELIMINARY; PRT; 191 AA.
AC 075875;
DT 01-NOV-1998 (TREMBLrel. 08, Created)
DT 01-NOV-1998 (TREMBLrel. 08, last sequence update)
DE 01-JUN-2000 (TREMBLrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
NN Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-BREAST;
RX MEDLINE; 98119755.
RA Claffey K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,
AB Abrams K.R., Lee S.W., Detmar M.;
RT "Identification of a human VEGF/VEGF 3' untranslated region mediating
RT hypoxia-induced mRNA stability."
RL Mol. Biol. Cell 9:469-481(1998).
DR EMBL; AF022375; AAC63143.1; -.
DR HSSP; P15692; IVP.
DR INTERPRO; IPR000072; -.
DR PFM; PF00341; PDGF; 1.
DR PRODOM; PD01629; -; 1.
SQ SEQUENCE 191 AA; 22320 MW; B5E435838C72715B CRC64;

Query Match 57.5%; Score 69; DB 4; Length 191;
Best Local Similarity 25.0%; Pred. No. 0.0054; 2; Mismatches 2; Indels 44; Gaps 1;
Matches 16; Conservative 2; Mismatches 2; Indels 44; Gaps 1;

QY 1 CECRPRKDRTPKPE-----KCD 16
DB 128 CECRPRKDRARQENPCGPGCSEKRLHFLVDDPOTCKSCNTHSRKARQLEINERTCRD 187
QY 17 KPRR 20
DB 188 KPRR 191

RESULT 11
Q9XT61 PRELIMINARY; PRT; 102 AA.
AC 09XT61;
DT 01-NOV-1999 (TREMBLrel. 12, Created)
DT 01-NOV-1999 (TREMBLrel. 12, last sequence update)
DE 01-MAY-2000 (TREMBLrel. 13, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
GN VEGF.
OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
NN Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-LUNG;
RA Adam I.K., Ryan A.M., Rohan R., Amano S., Aguilar S., Miller J.W.,
RA Kadam A.P.;
RT "Constitutive expression of VEGF, VEGFR-1 and VEGFR-2 in normal
RT eyes."
RL Submitted (NOV-1998) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF106942; AAD20589.1; -.
DR INTERPRO; IPR000072; -.
DR PFM; PF00341; PDGF; 1.
FT NON_TER 1
SQ SEQUENCE 102 AA; 12065 MW; 5F2D1A765DC29E02 CRC64;

Query Match 55.8%; Score 67; DB 6; Length 102;
Best Local Similarity 78.6%; Pred. No. 0.0062; 2; Mismatches 2; Indels 0; Gaps 0;
Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
QY 1 CECRPRKDRTPKPE 14

DB 15 CECRPRKDRARQER 28
RESULT 12
Q9XSF4 PRELIMINARY; PRT; 208 AA.
AC 09XSF4;
DT 01-NOV-1999 (TREMBLrel. 12, Created)
DT 01-NOV-1999 (TREMBLrel. 12, last sequence update)
DE 01-JUN-2000 (TREMBLrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 182.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
NN Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-HEART;
RA Jjiang L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF133249; AAD29683.1; -.
DR INTERPRO; IPR000072; -.
DR PFM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 208 AA; 24400 MW; CF77AC591F5C2BBE CRC64;

Query Match 55.8%; Score 67; DB 6; Length 208;
Best Local Similarity 78.6%; Pred. No. 0.011; 1; Mismatches 2; Indels 0; Gaps 0;
Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CECRPRKDRTPKPE 14
DB 127 CECRPRKDRARQER 140

RESULT 13
O60720 PRELIMINARY; PRT; 209 AA.
AC 060720;
DT 01-AUG-1998 (TREMBLrel. 07, Created)
DT 01-MAY-1999 (TREMBLrel. 10, last sequence update)
DE 01-JUN-2000 (TREMBLrel. 14, last annotation update)
DE VEGF183 PROTEIN PRECURSOR (VASCULAR ENDOTHELIAL GROWTH FACTOR 183).
GN VEGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
NN Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-KIDNEY;
RX MEDLINE; 99096474.
RA Lei J., Jiang A., Pei D.;
RT "Identification and characterization of a new splicing variant of
RT vascular endothelial growth factor: VEGF183."
RL Biochim. Biophys. Acta, Gene Struct. Expr. 1443:400-406(1998).
RN [2]
RP SEQUENCE OF 114-209 FROM N.A.
RC TISSUE-RETINA;
RA Jjiang L., Roque R.S.;
RL Submitted (MAY-1998) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF010438; CAA09179.1; -.
DR EMBL; AF062645; AAC16730.1; -.
DR HSSP; P15692; IVP.
DR INTERPRO; IPR000072; -.
DR PFM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR PRODOM; PD01625; -; 1.
FT SIGNAL 1
FT CHAIN 27 26 POTENTIAL.
SQ SEQUENCE 209 AA; 24422 MW; F01CCERACD945D6CA CRC64;

Query Match 55.8%; Score 67; DB 4; Length 209;
Best Local Similarity 78.6%; Pred. No. 0.011;
Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPRKDRTPK 14
Db 128 CECRPRKDRARQK 141

RESULT 14

O9XSF5 PRELIMINARY; PRT; 214 AA.

AC O9XSF5;
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 188.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Jingjing L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: ARI3250; AAD29584.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
SQ SEQUENCE 214 AA; 25151 MW; 2269981AFBC60058 CRC64;

Query Match 55.8%; Score 67; DB 6; Length 214;
Best Local Similarity 78.6%; Pred. No. 0.012;
Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPRKDRTPK 14
Db 127 CECRPRKDRARQK 140

RESULT 15

ID O16889 PRELIMINARY; PRT; 254 AA.

AC O16889;
DT 01-NOV-1996 (TREMBlrel. 01, Created)
DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
GN VEGF 206.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92168017.
RA Houck K.A., Ferrara N., Winer J., Cachanes G., Li B., Leung D.W.;
RT The vascular endothelial growth factor family: identification of a
RT fourth molecular species and characterization of alternative splicing
RT of RNA.
RL MOL. Endocrinol. 5:1806-1814(1991).
DR EMBL: S85197; AAC63102.1; -.
DR EMBL: S85198; AAC63101.1; -.
DR EMBL: S85199; AAC63101.1; JOINED.
DR EMBL: S85201; AAC63101.1; JOINED.
DR EMBL: S85219; AAC63101.1; JOINED.
DR EMBL: S85222; AAC63101.1; JOINED.
DR HSP: P15692; 2VPE.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.

FT NON TER 1 1
SQ SEQUENCE 254 AA; 29461 MW; 069DFE9B9723DBA8 CRC64;

Query Match 55.8%; Score 67; DB 4; Length 254;
Best Local Similarity 78.6%; Pred. No. 0.014;
Matches 11; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 CECRPRKDRTPK 14
Db 150 CECRPRKDRARQK 163

Search completed: November 9, 2000, 15:39:35
Job time: 612 sec

Thu Nov 9 15:49:43 2000

us-09-266-543-4.rsp

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:31:57 ; Search time 72.39 Seconds
(without alignments)
18.410 Million cell updates/sec

Title: US-09-266-543-5

Perfect score: 114
Sequence: 1 APTTEGEKSHVYIKFMDVYC 21

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	105	92.1	190	2 B44881	vascular endothelial
2	105	92.1	214	2 A44881	vascular endothelial
3	101	88.6	190	2 A35987	glioma-derived vas
4	85	74.6	190	2 S52130	vascular endothelial
5	81	71.1	120	2 A33787	vascular endothelial
6	81	71.1	190	2 B40080	vascular endothelial
7	80	70.2	36	2 A60706	vascular endothelial
8	79	69.3	146	2 S57956	ovine vascular end
9	65.5	57.5	232	2 A41551	vascular endothelial
10	47.5	41.7	360	2 T20686	hypothetical prote
11	46	40.4	436	2 T00756	hypothetical prote
12	46	40.4	2272	2 T18572	gag, pol and env p
13	44	38.6	180	2 T34851	probable secreted
14	44	38.6	405	2 T40193	hypothetical prote
15	44	38.6	1130	2 A56284	differentiation-sp
16	44	38.6	1131	2 A49393	activator 1 large
17	44	38.6	1131	2 A56200	replication factor
18	43	37.7	278	2 A81266	probable biotin sy
19	43	37.7	332	2 E69312	nitrate reductase
20	43	37.7	360	2 T08673	hypothetical prote
21	43	37.7	463	2 A69888	H+-symporter homol
22	43	37.7	574	2 S50800	probable membrane
23	43	37.7	1166	2 T29099	reverse gyrase - S
24	42.5	37.3	314	2 T24515	hypothetical prote
25	42.5	37.3	896	2 T06916	trehalose-phosphat
26	42.5	37.3	1265	2 T06916	DNA-directed RNA p
27	42	36.8	84	2 S57558	ribosomal protein
28	42	36.8	365	2 A71005	probable cell divi
29	42	36.8	379	2 I40873	serine proteinase

30	42	36.8	610	2 T20735	hypothetical prote
31	42	36.8	888	2 S50801	AMP deaminase homo
32	42	36.8	3268	2 S69625	hypothetical prote
33	41.5	36.4	346	2 T19676	hypothetical prote
34	41	36.0	84	1 A38727	ribosomal protein
35	41	36.0	332	1 A55897	prolactin-induced
36	41	36.0	333	2 D72492	probable ABC trans
37	41	36.0	371	3 T38659	hypothetical prote
38	41	36.0	472	2 T21226	hypothetical prote
39	41	36.0	472	1 W2ECD	deoxyribodiprimid
40	41	36.0	993	2 T25624	hypothetical prote
41	41	36.0	1607	2 T21982	hypothetical prote
42	40.5	35.5	298	2 S63238	hypothetical prote
43	40	35.1	80	2 T43625	ribosomal protein
44	40	35.1	83	2 T39526	40S ribosomal prot
45	40	35.1	117	2 B71000	hypothetical prote

ALIGNMENTS

```

RESULT 1
B44881
vascular endothelial growth factor-1 precursor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text_change 05-Nov-1999
C:Accession: B44881; A43351; A61029
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860
A:Accession: B44881
A:Molecule type: mRNA
A:Residues: 1-190 <BR>
A:Cross-References: GB:S38083; NID:9249858; PIDN:AA62253.1; PID:9249859
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBI:107623)
R:Jaffey, K.P.; Wilkison, W.O.; Spiegelman, B.M.
J. Biol. Chem. 267, 16317-16322, 1992
A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and a
A:Reference number: A43351; MUID:92355593
A:Accession: A43351
A:Molecule type: mRNA
A:Residues: 1-116/ER,119-190 <CIA>
A:Cross-References: GB:M95200; NID:9202350; PIDN:AAA0547.1; PID:9202351
A:Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBI:110675)
R:Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.
Growth Factors 4, 53-59, 1990
A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial
A:Reference number: A61029; MUID:91197543
A:Accession: A61029
A:Molecule type: protein
A:Residues: 27-38 <RDS>
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein:
Query Match 92.1% Score 105; DB 2; Length 190;
Best Local Similarity 100.0% Pred. No. 7.2e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 APTTEGEKSHVYIKFMDVY 20
|||||
Db 27 APTTEGEKSHVYIKFMDVY 46
|||||
RESULT 2
A44881
vascular endothelial growth factor-3 precursor - mouse
N:Contents: vascular endothelial growth factor-2; vascular permeability factor
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text_change 08-Oct-1999
C:Accession: A44881; C44881; A60932; S52136
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.

```

Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44861; MUID:92274860
A:Accession: A44861
A:Molecule type: mRNA
A:Residues: 1-214 <BRE>
A:Cross-references: GB:537052; NID:g249856; PIDN:AA62252.1; PID:g249857
A:Experimental source: embryo
A>Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBIPI:104678)
A:Accession: C44861
A:Molecule type: mRNA
A:Residues: 1-140, 209-214 <SR2>
A:Cross-references: GB:538100; NID:g249860; PIDN:AA62254.1; PID:g249861
A>Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBIPI:107625)
R:Clausen, M.; Gerlach, M.; Gerlach, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan, Y.C.
J. Exp. Med. 172, 1535-1545, 1990
A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces endothelial
A:Reference number: A60932; MUID:91079755
A:Accession: A60932
A:Molecule type: protein
A:Residues: 27-33 <CLA>
R:Sugihara, T.; Kaul, S.C.; Mitsui, Y.; Wadhwa, R.
Biochim. Biophys. Acta 1224, 365-370, 1994
A:Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous im
A:Reference number: S52136; MUID:95101726
A:Accession: S52136
A:Status: preliminary
A:Molecule type: protein
A:Residues: 27-46 <SUG>
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.
C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodimer;
F:1-26/Domin: signal sequence #status predicted <SIG>
F:27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match 92.1%; Score 105; DB 2; Length 214;
Best Local Similarity 100.0%; Pred. No. 8.2e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTTEGOKSHEVYKFMVDY 20
|||||
DB 27 APTTEGOKSHEVYKFMVDY 46

RESULT 3
A35987
glioma-derived vascular endothelial cell growth factor - rat
C:Species: Rattus norvegicus (Norway rat)
C>Date: 16-Nov-1990 #sequence_revision 16-Nov-1990 #text_change 05-Nov-1999
C:Accession: A35987
R:Conn, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Palisi, T.M.; Hope,
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990
A:Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is ho
A:Reference number: A35987; MUID:90207249
A:Accession: A35987
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <CON>
A:Cross-references: GB:M32167; NID:g204287; PIDN:AAA1211.1; PID:g204288

Query Match 88.6%; Score 101; DB 2; Length 190;
Best Local Similarity 90.0%; Pred. No. 3.3e-09;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTTEGOKSHEVYKFMVDY 20
|||||
DB 27 APTTEGOKSHEVYKFMVDY 46

RESULT 4
S52130
Vascular endothelial growth factor - pig

C:Species: Sus scrofa domestica (domestic pig)
C>Date: 14-Jul-1995 #sequence_revision 21-Jul-1995 #text_change 05-Nov-1999
C:Accession: S52130
R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.
Biochim. Biophys. Acta 1260, 235-238, 1995
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growt
A:Reference number: S52130; MUID:95143284
A:Accession: S52130
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <SHA>
A:Cross-references: GB:X81380; NID:g587559; PIDN:CAA57143.1; PID:g587560

Query Match 74.6%; Score 85; DB 2; Length 190;
Best Local Similarity 75.0%; Pred. No. 1.5e-06;
Matches 15; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

OY 1 APTTEGOKSHEVYKFMVDY 20
|||||
DB 27 APMAEGDOKPHEVYKFMVDY 46

RESULT 5
A33787
vascular endothelial growth factor (version 1) - bovine
C:Species: Bos primigenius taurus (cattle)
C>Date: 16-Mar-1990 #sequence_revision 16-Mar-1990 #text_change 05-Nov-1999
C:Accession: A33787
R:Ritscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Cr
Biochim. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived gro
A:Reference number: A33787; MUID:90121225
A:Accession: A33787
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-120 <TIS>
A:Cross-references: GB:M3750; NID:g163810; PIDN:AAA30805.1; PID:g163811
C:Keywords: alternative splicing

Query Match 71.1%; Score 81; DB 2; Length 120;
Best Local Similarity 75.0%; Pred. No. 4.1e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

OY 1 APTTEGOKSHEVYKFMVDY 20
|||||
DB 1 APMAEGDOKPHEVYKFMVDY 20

RESULT 6
B40080
vascular endothelial growth factor precursor (version 2) - bovine
C:Species: Bos primigenius taurus (cattle)
C>Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 05-Nov-1999
C:Accession: B40080; B33787; A33255
R:Leung, D.W.; Cacchione, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A:Reference number: A40080; MUID:90069608
A:Accession: B40080
A:Molecule type: mRNA
A:Residues: 1-190 <LEU>
A:Cross-references: GB:M32976; NID:g163006; PIDN:AAA30502.1; PID:g163007
R:Ritscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Cr
Biochim. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived gro
A:Reference number: A33787; MUID:90121225
A:Accession: B33787
A:Molecule type: mRNA
A:Residues: 27-190 <TIS>
A:Cross-references: GB:M31836; NID:g163808; PIDN:AAA30804.1; PID:g163809
R:Ferrara, N.; Henzel, W.J.

Biochem. Biophys. Res. Commun. 161, 851-858, 1989
A:Title: Pituitary follicular cells secrete a novel heparin-binding growth factor specific
A:Reference number: A33255; MUID:89286596
A:Accession: A33255
A:Molecule type: protein
A:Residues: 27-31 <FER>
C:Keywords: alternative splicing; glycoprotein
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>
F:100/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 71.1%; Score 81; DB 2; Length 190;
Best Local Similarity 75.0%; Pred. No. 6.7e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Oy 1 APTEGEOKSHVIRKMDVY 20
Db 27 APMAEGGCKPHEVVKFMDVY 46

RESULT 7
A60706
N:Vascular endothelial growth factor - guinea pig (fragment)
C:Species: Cavia porcellus (guinea pig)
C:Date: 14-May-1993 #sequence_revision 14-May-1993 #text_change 17-Mar-1999
A:Accession: A60706; A60544
R:Connolly, D.T.; Heavey, D.M.; Nelson, R.; Olander, J.V.; Eppley, B.L.; Delfino, J.J.
J. Clin. Invest. 84, 1470-1478, 1989
A:Title: Tumor vascular permeability factor stimulates endothelial cell growth and angiogenesis
A:Reference number: A60706; MUID:90037570
A:Accession: A60706
A:Molecule type: protein
A:Residues: 1-36 <CON>
R:Seeger, D.R.; Connolly, D.T.; Van De Water, L.; Feder, J.; Dvorak, H.F.
Cancer Res. 50, 1774-1778, 1990
A:Title: Purification and NH-2-terminal amino acid sequence of guinea pig tumor-secreted
A:Reference number: A60544; MUID:90167668
A:Accession: A60544
A:Molecule type: protein
A:Residues: 1-24 <SEN>
C:Comment: This protein promotes both vascular permeability and angiogenesis.
C:Keywords: mitogen

Query Match 70.2%; Score 80; DB 2; Length 36;
Best Local Similarity 75.0%; Pred. No. 1.6e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Oy 1 APTEGEOKSHVIRKMDVY 20
Db 1 APMAEGGCKPHEVVKFMDVY 20

RESULT 8
S57956
N:ovine vascular endothelial growth factor - sheep
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C:Date: 13-Jan-1996 #sequence_revision 01-Mar-1996 #text_change 05-Nov-1999
A:Accession: S57956
R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.
submitted to the EMBL Data Library, July 1995
A:Reference number: S57956
A:Accession: S57956
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-146 <RED>
A:Cross-references: EMBL:X89506; NID:g8993350; PIDN:CAA61677.1; PID:g8993351

Query Match 69.3%; Score 79; DB 2; Length 146;
Best Local Similarity 75.0%; Pred. No. 1.1e-05;

Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;
Oy 1 APTEGEOKSHVIRKMDVY 20
Db 27 APMAEGGCKPHEVVKFMDVY 46

RESULT 9
A41551
N:vascular endothelial growth factor 206 precursor - human
C:Species: Homo sapiens (man)
C:Date: 28-Aug-1992 #sequence_revision 28-Aug-1992 #text_change 05-Nov-1999
A:Accession: A41551; C41551; B41551; A40454; B40454; A40079; A40080; JQ1463;
R:Houck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Li, B.; Leung, D.W.
Mol. Endocrinol. 5, 1806-1814, 1991
A:Title: The vascular endothelial growth factor family: identification of a fourth member
A:Reference number: A41551; MUID:92168017
A:Accession: A41551
A:Molecule type: mRNA
A:Residues: 1-232 <HOU1>
A:Cross-references: GB:S85192; NID:g246155; PID:g246156
A:Accession: C41551
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <HOU2>
A:Accession: B41551
A:Status: nucleic acid sequence not shown; not compared with conceptual translation
A:Molecule type: mRNA
R:Risacher, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fiddes, J.C.;
J. Biol. Chem. 266, 11947-11954, 1991
A:Title: The human gene for vascular endothelial growth factor. Multiple protein forms
A:Reference number: A40454; MUID:91268072
A:Accession: A40454
A:Molecule type: DNA
A:Residues: 1165, 183-232 <TI1>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63976;
A:Accession: B40454
A:Molecule type: DNA
A:Residues: 1-140, 'N', 183-232 <TI2>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63977;
A:Accession: C40454
A:Molecule type: DNA
A:Residues: 1-141, 227-232 <TI3>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978;
R:Reck, P.J.; Hauser, S.D.; Kriv, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.
Science 246, 1309-1312, 1989
A:Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF.
A:Reference number: A40079; MUID:90069609
A:Accession: A40079
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-165, 183-232 <REC>
A:Cross-references: GB:M27281; NID:g340300; PIDN:AAA36807.1; PID:g340301
R:Leung, D.W.; Cachianes, G.; Kuan, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A:Reference number: A40080; MUID:90069608
A:Accession: A40080
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <LEU>
A:Cross-references: GB:M32977; NID:g181970; PIDN:AAA35789.1; PID:g181971
R:Weinhold, K.; Marne, D.; Welch, H.A.
Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992
A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial
A:Reference number: JQ1463; MUID:92231879
A:Accession: JQ1463
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <WEI>
A:Cross-references: EMBL:X62568; NID:g37658; PIDN:CAA44444.1; PID:g37659

A;Experimental source: AIDS-Kaposi's sarcoma cell
A;Accession: JQ164
A;Molecule type: mRNA
A;Residues: 1-140, 'N', 227-232 <ME2>
A;Experimental source: AIDS-Kaposi's sarcoma cell
J. Biol. Chem. 264, 20017-20024, 1989
A;Title: Human vascular permeability factor. Isolation from U937 cells.
A;Reference number: A34492; MUID:90062112
A;Accession: A34492
A;Molecule type: protein
A;Residues: 27-36;43-49, 'R', 72-76, 'Q', 78-81;59-71 <CON>
C;Comment: The most common of several alternatively spliced forms is VEGF 165.
C;Genetics:
A;Gene: GDB:VEGF
A;Cross-references: GDB:132244; OMIM:192240
A;Map position: 6p21-6p12
C;Function:
A;Description: promotes fluid and protein leakage from blood vessels
C;Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pr
F;1-232/Product: vascular endothelial growth factor 206 precursor #status predicted <V20
F;1-165,183-232/Product: vascular endothelial growth factor 189 precursor #status predic
F;1-141,227-232/Product: vascular endothelial growth factor 121 precursor #status predic
F;1-26/Domain: signal sequence #status predicted <SIG>
F;101/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 57.5%; Score 65.5; DB 2; Length 232;
Best Local Similarity 66.7%; Pred. No. 0.003;
Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;

QY 1 APTTE-GEOKSHEVIRKMDY 20
DB 27 APMAEGGQNHHEVKKFMDY 47

RESULT 10
T20686
hypothetical protein F10A3.13 - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 15-Oct-1999
C;Accession: T20686
R;Lloyd, C.
submitted to the EMBL Data Library, March 1997
A;Reference number: Z19309
A;Accession: T20686
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-360 <WTL>
A;Cross-references: EMBL:Z92829; PIDN:CA07349.1; GSPDB:GN00023; CESP:F10A3.13
A;Experimental source: clone F10A3
C;Genetics:
A;Gene: CESP:F10A3.13
A;Map position: 5
A;Introns: 66/3; 96/1

Query Match 41.7%; Score 47.5; DB 2; Length 360;
Best Local Similarity 62.5%; Pred. No. 4.5;
Matches 10; Conservative 2; Mismatches 3; Indels 1; Gaps 1;

QY 7 EOKSHEVIRKMDY 21
DB 160 EMKDEVIPEFLDYC 175

RESULT 11
T00756
hypothetical protein T20B5.12 - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 12-Feb-1999 #sequence_revision 12-Feb-1999 #text_change 14-May-1999
C;Accession: T00756
R;Rounsley, S.D.; Lih, X.; Ketchum, K.A.; Crosby, M.L.; Brandon, R.C.; Sykes, S.M.; Kaul

submitted to the EMBL Data Library, November 1997
A;Description: Arabidopsis thaliana chromosome II BAC T20B5 genomic sequence.
A;Reference number: Z14159
A;Accession: T00756
A;Status: translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-436 <ROD>
A;Cross-references: EMBL:AC002409; NID:92623294; PID:92623306
A;Experimental source: cultivar Columbia
C;Genetics:
A;Map position: 2
A;Introns: 35/3
A;Note: T20B5.12

Query Match 40.4%; Score 46; DB 2; Length 436;
Best Local Similarity 47.1%; Pred. No. 9.9;
Matches 8; Conservative 4; Mismatches 5; Indels 0; Gaps 0;

QY 1 APTTEGEOKSHEVIRK 17
DB 253 APTEGRSTSGSVRYM 269

RESULT 12
T18572
gag, pol and env protein precursor - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 15-Oct-1999
C;Accession: T18572
R;Ritten, R.
submitted to the EMBL Data Library, September 1994
A;Reference number: Z18980
A;Accession: T18572
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-2272 <WTL>
A;Cross-references: EMBL:U15406; PIDN:AA50456.1

Query Match 40.4%; Score 46; DB 2; Length 2272;
Best Local Similarity 53.3%; Pred. No. 58;
Matches 8; Conservative 3; Mismatches 4; Indels 0; Gaps 0;

QY 7 EOKSHEVIRKMDY 21
DB 272 EOKHONIQMDTRC 286

RESULT 13
T34851
probable secreted protein - Streptomyces coelicolor
C;Species: Streptomyces coelicolor
C;Date: 05-Nov-1999 #sequence_revision 05-Nov-1999 #text_change 05-Nov-1999
C;Accession: T34851
R;Oliver, K.; Harris, D.; Bentley, S.D.; Parkhill, J.; Barrell, B.G.; Rajandream, M.A
submitted to the EMBL Data Library, February 1999
A;Reference number: Z21559
A;Accession: T34851
A;Status: preliminary; translated from GB/EMBL/DBJ
A;Molecule type: DNA
A;Residues: 1-180 <COLI>
A;Cross-references: EMBL:AL035476; PIDN:CA836605.1; GSPDB:GN00070; SCOEDB:SC265.18C
A;Experimental source: strain A3(2)
C;Genetics:
A;Gene: SCOEDB:SC265.18C

Query Match 38.6%; Score 44; DB 2; Length 180;
Best Local Similarity 69.2%; Pred. No. 8.2;
Matches 9; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 3 TTEGEOKSHEVIRK 15

Page 5

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:40:18 ; Search time 41.83 seconds
(without alignments)
16.039 Million cell updates/sec

Title: US-09-266-543-5

Perfect score: 114
Sequence: 1 APTTEGEQKSHVIRKEMDYIC 21

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues

Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_39:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	105	92.1	214	1	VEGF_MOUSE
2	101	88.6	190	1	VEGF_RAT
3	85	74.6	190	1	VEGF_PIG
4	81	71.1	190	1	VEGF_BOVIN
5	79	69.3	146	1	VEGF_SHEEP
6	74	64.9	164	1	VEGF_CAVPO
7	65.3	57.5	215	1	VEGF_HUMAN
8	58	50.9	216	1	VEGF_CHICK
9	44	38.6	886	1	HS97_STRFN
10	44	38.6	1131	1	AC15_MOUSE
11	43	37.7	463	1	YNAJ_BACSU
12	43	37.7	574	1	YH1L_YEAST
13	42.5	37.3	896	1	TPS2_YEAST
14	42.5	37.3	1265	1	RPOD_CYAPA
15	42	36.8	273	1	EPG_STRMU
16	42	36.8	273	1	EPG_STRMU
17	42	36.8	888	1	YH0D_YEAST
18	41	36.0	398	1	RS27_RAT
19	41	36.0	398	1	HL1_ARATH
20	41	36.0	472	1	PHR_ECOLI
21	41	36.0	499	1	YDL1_SCHPO
22	40.5	35.5	298	1	YMO5_YEAST
23	40.5	35.5	83	1	RS27_SCHPO
24	40	35.1	335	1	Y780_METJA
25	40	35.1	394	1	EFTU_MYCA
26	40	35.1	411	1	RAPS_CHICK
27	40	35.1	524	1	SAP_HUMAN
28	40	35.1	708	1	GPF_DICDI
29	40	35.1	760	1	RESA_PIAFN
30	40	35.1	848	1	233A_HUMAN
31	40	35.1	864	1	LOX2_PEA
32	40	35.1	865	1	LOX2_SOYBN
33	40	35.1	1073	1	RESA_PLAFB

34	40	35.1	1967	1	YG50_YEAST	P5327	saccharomyc
35	40	35.1	2242	1	PYR1_SQUAC	O91437	squas aca
36	40	35.1	3210	1	CENE_HUMAN	P49454	homo sapien
37	39.5	34.6	98	1	Y618_METJA	O58035	methanococc
38	39.5	34.6	503	1	TYPH_METJA	O58035	methanococc
39	39.5	34.6	1319	1	SOS1_MOUSE	O62245	mus muscucu
40	39.5	34.6	1333	1	SOS1_HUMAN	O07889	homo sapien
41	39	34.2	178	1	HIS7_ARCFU	O29277	archaeoglob
42	39	34.2	218	1	UNG_FOXP1	P21968	foxlpx vir
43	39	34.2	317	1	CYSD_RHIME	P56892	rhizobium m
44	39	34.2	317	1	CYSD_RHTR	O33580	rhizobium t
45	39	34.2	333	1	PAP2_VACCC	P21033	vaccinia vi

ALIGNMENTS

RESULT	1	VEGF_MOUSE	STANDARD	PRT	214 AA
AC	000731:				
DT	01-APR-1993 (Rel. 25, Created)				
DT	01-OCT-1996 (Rel. 34, Last sequence update)				
DT	01-OCT-1996 (Rel. 34, Last annotation update)				
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).				
GN	VEGF.				
OS	Mus musculus (Mouse).				
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.				
RN	[1]				
RP	SEQUENCE FROM N.A.				
RX	MEDLINE: 92274860.				
RA	Breier G., Albrecht U., Sterrer S., Rieau W.:				
RT	"Expression of vascular endothelial growth factor during embryonic angiogenesis and endothelial cell differentiation."				
RL	Development 114:521-532(1992).				
RN	[2]				
RP	SEQUENCE FROM N.A. (VEGF-1).				
RX	MEDLINE: 92355593.				
RA	Claffey K.P., Wilkison W.O., Spiegelman B.M.:				
RT	"Vascular endothelial growth factor. Regulation by cell differentiation and activated second messenger pathways."				
RL	J. Biol. Chem. 267:16317-16322(1992).				
RN	[3]				
RP	SEQUENCE OF 1-3 FROM N.A.				
RX	MEDLINE: 96216498.				
RA	Shima D.T., Kuraki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.:				
RT	"The mouse gene for vascular endothelial growth factor. Genomic structure, definition of the transcriptional unit, and characterization of transcriptional and post-transcriptional regulatory sequences."				
RL	J. Biol. Chem. 271:3877-3883(1996).				
CC	-1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.				
CC	-1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.				
CC	-1- SUBCELLULAR LOCATION: VEGF-1 AND VEGF-2 ARE SECRETED WHILE VEGF-3 REMAINS CELL-SURFACE ASSOCIATED UNLESS RELEASED BY HEPARIN.				
CC	-1- ALTERNATIVE PRODUCTS: THREE FORMS (VEGF-1, VEGF-2 AND VEGF-3) ARE PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME GENE. THE LONGEST FORM (VEGF-3, SHOWN HERE) CONTAINS A BASIC INSERT LINKED TO CELL-ASSOCIATION/HEPARIN-BINDING.				
CC	-1- TISSUE SPECIFICITY: IN DEVELOPING EMBRYOS, EXPRESSED MAINLY IN THE CHOROID PLEXUS, PARAVASCULAR NEUROEPITHELIUM, PLACENTA AND KIDNEY GLOMERULI. ALSO FOUND IN BRONCHIAL EPITHELIUM, ADRENAL GLAND AND IN SEMINIFEROUS TUBULES OF TESTIS. HIGH EXPRESSION OF VEGF CONTINUES IN KIDNEY GLOMERULI AND CHOROID PLEXUS IN ADULTS.				
CC	-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.				
CC	-----				
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -				

CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).

CC EMBL: S37052; AAB22252.1; -
CC EMBL: S38083; AAB22253.1; -
CC EMBL: S38100; AAB22254.1; -
CC EMBL: M65200; AAA40547.1; -
CC EMBL: U41383; CAB35345.1; -
CC PIR: A43351; A43351.
CC HSSP: P15692; 2VGH.
CC MGD: MGI:103178; VEGF.
CC INTERPRO: IPR000072; -
CC PFAM: PF00341; PDGF_1; -
CC PROSITE: PS00249; PDGF_1; 1.
CC PROSITE: PS0278; PDGF_2; 1.
CC Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
CC SIGNAL
CC CHAIN 1 26
CC FT DISULFID 27 214
CC FT DISULFID 51 93
CC FT DISULFID 82 127
CC FT DISULFID 86 129
CC FT DISULFID 76 76
CC FT DISULFID 85 85
CC FT CARBOHYD 100 100
CC FT VARSPLIC 140 140
CC FT VARSPLIC 141 164
CC FT VARSPLIC 141 208
CC FT CONFLICT 117 118
CC SEQUENCE 214 AA; 25283 MW; B5540B51E4B6E17 CRC64;
GE -> ER (IN REF. 2).

Query Match- 92.1%; Score 105; DB 1; Length 214;
Best Local Similarity 100.0%; Pred. NO. 3.8e-10;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTEGEOKSHVEIKFMDYV 20
DB 27 APTEGEOKSHVEIKFMDYV 46
|||||

RESULT 2
VEGF_RAT STANDARD; PRT; 190 AA.
AC P16612;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Rattus.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-190.
RX MEDLINE; 90207249.
RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,
RA Palist T.M., Hope D.A., Thomas K.A.,
RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen
RT that is homologous to platelet-derived growth factor.";
RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- TISSUE SPECIFICITY: EXPRESSED IN THE PITUITARY, IN BRAIN, IN
CC PARTICULARLY IN SUPRAOPTIC AND PARAVENTRICULAR NUCLEI AND THE

CC CHOROID PLEXUS. ALSO FOUND ABUNDANTLY IN THE CORPUS LUTHEUM OF
CC THE OVARY AND IN KIDNEY GLOMERULI.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----

CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).

CC EMBL: M32167; AAA42211.1; -
CC PIR: A35987; A35987.
CC HSSP: P15692; 2VGH.
CC INTERPRO: IPR000072; -
CC PFAM: PF00341; PDGF_1; -
CC PROSITE: PS00249; PDGF_1; 1.
CC PROSITE: PS0278; PDGF_2; 1.
CC Mitogen; Growth factor; Glycoprotein; Signal.
CC SIGNAL
CC CHAIN 1 26
CC FT DISULFID 27 190
CC FT DISULFID 51 93
CC FT DISULFID 82 127
CC FT DISULFID 86 129
CC FT DISULFID 76 76
CC FT DISULFID 85 85
CC FT CARBOHYD 100 100
CC SEQUENCE 190 AA; 22396 MW; 589374010441F377 CRC64;

Query Match- 88.6%; Score 101; DB 1; Length 190;
Best Local Similarity 90.0%; Pred. NO. 1.5e-09;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 APTEGEOKSHVEIKFMDYV 20
DB 27 APTEGEOKSHVEIKFMDYV 46
|||||

RESULT 3
VEGF_PIG STANDARD; PRT; 190 AA.
AC P49151;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Suidae; Sus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 95143264.
RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;
RT "Nucleotide sequence and expression of the porcine vascular
RT endothelial growth factor.";
RL Biochim. Biophys. Acta 1260:235-238(1995).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY (BY SIMILARITY).
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -
CC the European Bioinformatics Institute. There are no restrictions on its

```

CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (see http://www.isb-sdb.ch/announce/
CC or send an email to license@sdb.ch).
CC -----
CC EMBL; X81380; CA57143.1; ..
CC DR HSSP; P15692; 2VGH.
CC DR INTERPRO; IPR000072; ..
CC DR PFAM; PF00341; PDGF_1.
CC DR PROSITE; PS00249; PDGF_1; 1.
CC DR PROSITE; PS50278; PDGF_2; 1.
CC KW Mitogen; Growth factor; Glycoprotein; Signal.
CC FT SIGNAL 1 26
CC FT CHAIN 27 190 POTENTIAL.
CC FT DISULFID 51 93 VASCULAR ENDOTHELIAL GROWTH FACTOR.
CC FT DISULFID 82 127 BY SIMILARITY.
CC FT DISULFID 86 129 BY SIMILARITY.
CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
CC FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
CC FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
CC SQ SEQUENCE 190 AA; 22368 MW; 04D40B8D/913047F CRC64;

Query Match 74.6%; Score 85; DB 1; Length 190;
Best Local Similarity 75.0%; Pred. No. 6.8e-07;
Matches 15; Conservative 2; Mismatches 3; Indels 0; Gaps 0.

OY 1 APTEGEQKRSHEVIKEMDYY 20
Db 1111111111111111
27 APMAGDQKPEHVAKEMDYY 46

RESULT 4
VEGF_BOVIN STANDARD: PRT; 190 AA.
ID VEGF_BOVIN
AC P15691:
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
OC Bovidae; Bovinae; Bos.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.
RX MEDLINE; 90069608.
RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic
RT mitogen."
RL Science 246:1306-1309(1989).
RN [2]
RP SEQUENCE OF 27-190 FROM N.A.
RX MEDLINE; 90121223.
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,
RA Lau K., Crisp T., Fiddes J.C., Abraham J.A.;
RT "Vascular endothelial growth factor: a new member of the platelet-
RT derived growth factor gene family".
RL Biochem. Biophys. Res. Commun. 165:1198-1206(1989).
RN [3]
RP SEQUENCE OF 27-31.
RX MEDLINE; 89286596.
RA Ferrara N., Henzel W.J.;
RT "Plutary follicular cells secrete a novel heparin-binding growth
RT factor specific for vascular endothelial cells."
RL Biochem. Biophys. Res. Commun. 161:851-858(1989).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR

```

```

CC      TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC      SIMILARITY).
CC      -I-. SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC      -----
CC      This SWISS-PROT entry is copyright. It is produced through a collaboration
CC      between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC      the European Bioinformatics Institute. There are no restrictions on its
CC      use by non-profit institutions as long as its content is in no way
CC      modified and this statement is not removed. Usage by and for commercial
CC      entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC      or send an email to license@isb-sib.ch).
CC      -----
DR      EMBL; M32976; AAA30502.1; -
DR      EMBL; M31836; AAA30804.1; -
DR      EMBL; M33750; AAA30805.1; -
DR      PIR; A33255; A33255.
DR      PIR; A33787; A33787.
DR      PIR; B40080; B40080.
DR      HSSP; P15692; 2YGH
DR      INTERPRO; IPR000072; -
DR      PFAM; PF00341; PDGF; 1.
DR      PROSITE; PS00249; PDGF_1; 1.
DR      PROSITE; PS50278; PDGF_2; 1.
KW      Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT      SIGNAL 1 26
FT      CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT      DISULFID 51 93 BY SIMILARITY.
FT      DISULFID 82 127 BY SIMILARITY.
FT      DISULFID 86 129 BY SIMILARITY.
FT      DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT      DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT      CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT      VASAPPLIC 139 183 MISSING (IN ISOFORM BETA).
FT      VASAPPLIC 184 184 R -> K (IN ISOFORM BETA).
SQ      SEQUENCE 190 AA; 22310 MM; EDBF03E46E24789 CRC64;

Query Match 71.1%; Score 81; DB 1; Length 190;
Best Local Similarity 75.0%; Pred. No. 3.1e-06;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

Cy 1 APTTEGKSHVIREKMDY 20
   |||||:|||||
Db 27 APMAGGKPKHEVAKMDY 46

RESULT 5
VEGF_SHEEP STANDARD: PRT: 146 AA.
AC P50412:
DT 01-OCT-1996 (Ref. 34, Created)
DT 01-OCT-1996 (Ref. 34, Last sequence update)
DT 01-NOV-1997 (Ref. 35, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OC [1]
RN RP SEQUENCE FROM N.A.
RC TISSUE-KIDNEY;
RX MEDIAN; 97117958.
RA Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K.,
RA Reynolds L.P., Moor R.M.;
RT "Characterization and expression of vascular endothelial growth
RT factor (VEGF) in the ovine corpus luteum.";
RL J. Reprod. Fertl. 108:157-165(1996).
CC -I- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -I- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.

```

CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 CC SIMILARITY).
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 CC EMBL: X85906; CA61677.1; -
 CC HSSP: P15692; 1VP.
 CC INTERPRO: IPR000072; -
 CC DR PFM: PF00341; PDGF; 1.
 CC DR PROSITE: PS00249; PDGF_1; 1.
 CC DR PROSITE: PS0278; PDGF_2; 1.
 CC KM Mitogen; Growth factor; Glycoprotein; Signal.
 CC FT SIGNAL 1 26 BY SIMILARITY.
 CC FT CHAIN 1 26 VASCULAR ENDOTHELIAL GROWTH FACTOR.
 CC FT DISULFID 51 146 BY SIMILARITY.
 CC FT DISULFID 82 127 BY SIMILARITY.
 CC FT DISULFID 86 129 BY SIMILARITY.
 CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
 CC FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
 CC FT CARBOHYD 100 100 N-LINKED (GLCNAC...) (POTENTIAL).
 CC SQ SEQUENCE 166 AA; 17247 MW; 4E792CB57F91760 CRC64;
 OY 1 APTTEGQKSHVYKFMVY 20
 DB 27 APMAEGGQKPREVKFMVY 46
 RESULT 6
 VEGF_CAVPO STANDARD; PRT; 164 AA.
 AC P26617;
 DT 01-AUG-1992 (Rel. 23, Created)
 DT 01-AUG-1992 (Rel. 23, Last sequence update)
 DT 01-OCT-1996 (Rel. 34, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) (VASCULAR PERMEABILITY
 DE FACTOR) (VPF).
 GN VEGF.
 OS Cavia porcellus (Guinea pig).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Hystriognathi; Caviidae; Cavia.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Berse B.;
 RU Submitted (XXX-1992) to the EMBL/GenBank/DBJ databases.
 RL -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 CC PERMEABILITY.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 CC SIMILARITY).
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----

CC EMBL: M84230; AAA37057.1; -
 CC HSSP: P15692; 2VGH.
 CC INTERPRO: IPR000072; -
 CC DR PFM: PF00341; PDGF; 1.
 CC DR PROSITE: PS00249; PDGF_1; 1.
 CC DR PROSITE: PS0278; PDGF_2; 1.
 CC KM Mitogen; Growth factor; Glycoprotein.
 CC FT DISULFID 25 67 BY SIMILARITY.
 CC FT DISULFID 56 101 BY SIMILARITY.
 CC FT DISULFID 60 103 BY SIMILARITY.
 CC FT DISULFID 59 59 INTERCHAIN (BY SIMILARITY).
 CC FT CARBOHYD 74 74 N-LINKED (GLCNAC...) (POTENTIAL).
 CC SQ SEQUENCE 164 AA; 19330 MW; 9EB86AB1A9D5DCA4 CRC64;
 OY 1 APTTEGQKSHVYKFMVY 20
 DB 1 APMAEGGQKPREVKFMVY 20
 RESULT 7
 VEGF_HUMAN STANDARD; PRT; 215 AA.
 AC P15692;
 DT 01-APR-1990 (Rel. 14, Created)
 DT 01-APR-1990 (Rel. 14, Last sequence update)
 DT 15-JUL-1999 (Rel. 38, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
 DE PERMEABILITY FACTOR) (VPF).
 GN VEGF OR VEGFA.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
 RT "Vascular endothelial growth factor is a secreted angiogenic
 RT mitogen."
 RL Science 246:1306-1309(1989).
 RN [2]
 RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
 RA Keck P.J., Hauser S.D., Kivvi G., Sanzo K., Warren T., Feder J.,
 RT Connolly D.T.;
 RL "Vascular permeability factor, an endothelial cell mitogen related to
 RL PDGF."
 RL Science 246:1305-1312(1989).
 RN [3]
 RP SEQUENCE FROM N.A.
 RA MEDLINE: 91268072.
 RA Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,
 RA Fiddes J.C., Abraham J.A.;
 RT "The human gene for vascular endothelial growth factor. Multiple
 RT protein forms are encoded through alternative exon splicing."
 RL J. Biol. Chem. 266:11947-11954(1991).
 RN [4]
 RP SEQUENCE FROM N.A.
 RA MEDLINE: 92231879.
 RA Weindel K., Wane D., Welch H.A.;
 RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular
 RT endothelial growth factor."
 RL Biochem. Biophys. Res. Commun. 183:1167-1174(1992).
 RN [5]
 RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.
 RX MEDLINE: 90062112.
 RA Connolly D.T., Clander J.V., Heuvelman D., Nelson R., Monsell R.,

RA Siegel N., Haymore B.L., Leimruber R., Feder J.;
RT "Human vascular permeability factor. Isolation from U937 cells.";
RL J. Biol. Chem. 264:20017-20024(1989).
RN [6]
RP SEQUENCE OF 27-41.
RX MEDLINE; 93145946.
RA Fiebich B.L., Jeger B., Schoellmann C., Weindel K., Wiltting J.,
RA Koops G., Matme D., Hug H., Welch H.A.;
RT "Synthesis and assembly of functionally active human vascular
RT endothelial growth factor homodimers in insect cells.";
RL Eur. J. Biochem. 211:19-26(1993).
RN [7]
RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.
RX MEDLINE; 97352774.
RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,
RA de Vos A.M.;
RT "Vascular endothelial growth factor: crystal structure and functional
RT mapping of the kinase domain receptor binding site";
RN Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).
RP [8]
RX X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.
RA MEDLINE; 98035455.
RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;
RT "The crystal structure of vascular endothelial growth factor (VEGF)
RT refined to 1.93-A resolution: multiple copy flexibility and receptor
RT binding.";
RL Structure 5:1325-1338(1997).
RN [9]
RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.
RX MEDLINE; 99119204.
RA Wiesmann C., Christinger H.W., Cochran A.G., Cunningham B.C.,
RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;
RT "Crystal structure of the complex between VEGF and a receptor-blocking
RT peptide.";
RL Biochemistry 37:17765-17772(1998).
RN [10]
RP STRUCTURE BY NMR OF 34-135.
RX MEDLINE; 97477915.
RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
RA Starovasnik M.A.;
RT "1H, 13C, and 15N backbone assignment and secondary structure of the
RT receptor-binding domain of vascular endothelial growth factor.";
RL Protein Sci. 6:2250-2260(1997).
RN [11]
RP STRUCTURE BY NMR OF 137-215.
RX MEDLINE; 98298440.
RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
RA Starovasnik M.A.;
RT "Solution structure of the heparin-binding domain of vascular
RT endothelial growth factor.";
RL Structure 6:637-648(1998).
CC -I- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -I- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -I- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -I- ALTERNATIVE PRODUCTS: FOUR FORMS OF VEGF ARE PRODUCED BY
CC ALTERNATIVE SPLICING OF THE SAME GENE (VEGF-121, VEGF-165,
CC VEGF-189 AND VEGF-215).
CC -I- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (see <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; M32977; AAA35789.1; -
DR EMBL; M27281; AAA36807.1; -

DR	EMBL:	M63978:	AAA36804.1;	-	JOINED.
DR	EMBL:	M63971:	AAA36804.1;	JOINED.	
DR	EMBL:	M63972:	AAA36804.1;	JOINED.	
DR	EMBL:	M63973:	AAA36804.1;	JOINED.	
DR	EMBL:	M63974:	AAA36804.1;	JOINED.	
DR	EMBL:	M63975:	AAA36804.1;	JOINED.	
DR	EMBL:	M63976:	AAA36804.1;	JOINED.	
DR	EMBL:	M63977:	AAA36804.1;	JOINED.	
DR	EMBL:	X62568:	CANA44447.1;	-	
DR	PIR:	A34492:	A34492.		
DR	PIR:	A40079:	A40079.		
DR	PIR:	A40080:	A40080.		
DR	PIR:	A40454:	A40454.		
DR	PIR:	B40454:	B40454.		
DR	PIR:	C40454:	C40454.		
DR	PIR:	JQ1463:	JQ1463.		
DR	PIR:	JQ1464:	JQ1464.		
DR	PIR:	S17348:	S17348.		
DR	PDB:	1VGH:	08-APR-98.		
DR	PDB:	2VGH:	08-APR-98.		
DR	PDB:	1VPF:	08-APR-98.		
DR	PDB:	2VPF:	29-JUL-98.		
DR	PDB:	1VPP:	23-FEB-99.		
DR	MIM:	192240:	-		
DR	INTERPRO:	IPRO00072:	-		
DR	PRAM:	PF00341:	PDGF_1; 1.		
DR	PROSITE:	PS00249:	PDGF_1; 1.		
DR	PROSITE:	PS0278:	PDGF_2; 1.		
KW	Mitogen:	Growth factor;	Glycoprotein; Alternative splicing; Signal;		
KW	3d-structure.				
FT	SIGNAL	1;	26		
FT	CHAIN	27;	215	VASCULAR ENDOTHELIAL GROWTH FACTOR.	
FT	DISULEID	52;	94		
FT	DISULEID	83;	128		
FT	DISULEID	87;	130		
FT	DISULEID	77;	77	INTERCHAIN.	
FT	DISULEID	86;	86	INTERCHAIN.	
FT	CARBOHD	101;	101	N-LINKED (GLCNAc...).	
FT	VARSPLIC	141;	141	K -> N (IN ISOFORM VEGF-121 AND ISOFORM VEGF-165).	
FT	VARSPLIC	142;	165	MISSING (IN ISOFORM VEGF-165).	
FT	VARSPLIC	142;	209	MISSING (IN ISOFORM VEGF-121).	
SO	SEQUENCE	215 AA;	25173 MW;	7B9739AD5871FF33 CRC64;	

Query Match Best Local Similarity 57.5%; Score 65.5; DB 1; Length 215;
Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;

```

OY      1 APTE-GEOKSHEVIKEMDVY 20
        || | | | .|||:|||
DB       27 APMAGGGQNHHVEYVKFMDVY 47

RESULT      8
VEGF_CHICK  STANDARD;          PRT;    216 AA.
AC      P52582; OJ1420;
DT      01-OCT-1996 (Rel. 34, Created)
DT      15-JUL-1998 (Rel. 36, Last sequence update)
DT      15-DEC-1998 (Rel. 37, Last annotation update)
DE      VASCUTHER ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN      VEGF.
OS      Gallus gallus (Chicken), and
OC      Coturnix coturnix japonica (Japanese quail).
OC      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC      Archosauromorpha; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
CC      Gallus.
NM      [1]
RF      SEQUENCE FROM N.A.
RC      SPECIES=CHICKEN; TISSUE=HEART;
RA      Takahashi T.,

```

Submitted (FEB-1998) to the EMBL/GenBank/DBJ databases.

[2]
SEQUENCE FROM N.A.
SPECIES=C.C.JAPONICA; TISSUE=EMBRYO;
MEDLINE: 96005007.
Flamme I., von Reutern M., Drexler H.C., Syed-Ali S., Risau W.;
"Overexpression of vascular endothelial growth factor in the avian
embryo induces hypervascularization and increased vascular
permeability without alterations of embryonic pattern formation";
Dev. Biol. 171:399-414(1995).

[3]
SEQUENCE OF 60-187 FROM N.A.
SPECIES=C.C.JAPONICA;
MEDLINE: 95301109.
Flamme I., Breier G., Risau W.;
"Vascular endothelial growth factor (VEGF) and VEGF receptor 2
(Flk-1) are expressed during vasculogenesis and vascular
differentiation in the quail embryo";
Dev. Biol. 169:699-712(1995).

-1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
PERMEABILITY.
-1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
-1- ALTERNATIVE PRODUCTS: THREE ISOFORMS (VEGF-190, VEGF-146 AND VEGF-
166) ARE PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME
GENE. THE LONGER FORM CONTAINS A BASIC INSERT WHICH ACTS AS A CELL
RETENTION SIGNAL.
-1- TISSUE SPECIFICITY: ABUNDANTLY AND EQUALLY EXPRESSED IN HEART AND
LIVER. IN KIDNEY GLOMERULI, BRAIN AND YOLK SAC, VEGF-166 FORM IS
5- TO 10- TIMES MORE ABUNDANT THAN THE VEGF-190 FORM.
-1- DEVELOPMENTAL STAGE: THE VEGF-166 FORM IS EXPRESSED EARLY AT DAY 1
AND IS UPGRADED DURING GASTRULATION. EXPRESSION OF THE VEGF-190
FORM IS DETECTABLE ONLY FROM DAY 2.
-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation
at the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
or send an email to license@isb-sib.ch).

EMBL: AB011078; BAA24925.1; -
DR EMBL: S79680; AAB35371.1; -
DR HSSP: P15692; 2VGH
DR INTERPRO: IPR000072; -
DR PRAM: PF00341; PDGF_1;
DR PROSITE: PS00249; PDGF_1; 1;
DR PROSITE: PS50278; PDGF_2; 1;
KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT CHAIN 1 26
FT SIGNAL 1 26
FT CHAIN 27 216
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 77 77
FT DISULFID 86 86
FT CARBOHYD 101 101
FT VARSPLIC 142 142
FT VARSPLIC 143 146
FT VARSPLIC 166 166
FT VARSPLIC 167 210
FT VARSPLIC 216 210
SQ SEQUENCE 216 AA; 82669636FC6DA7 CRC64;

Query Match 50.9%; Score 58; DB 1; Length 216;
Best Local Similarity 62.5%; Pred. No. 0.022;
Matches 10; Conservative 5; Mismatches 1; Indels 0; Gaps 0;

QY 5 EGROKSHVTKEMDYY 20
DB 32 DGERKREVIKPLEVY 47

RESULT 9
ID HS97_STREN STANDARD; PRT; 886 AA.
AC 094738;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 30-MAY-2000 (Rel. 39, Last annotation update)
DE 97 KDA HEAT SHOCK PROTEIN (HEAT SHOCK PROTEIN 110).
GN HSP110.
OS Strongylocentrotus franciscanus (Sea urchin).
OC Eukaryota; Metazoa; Echinodermata; Eleutherozoa; Echinozoa;
OC Echinoidea; Euechinoidea; Echinacea; Echinoidea; Strongylocentrotidae;
OC Strongylocentrotus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 97287853.
RA Mauk R., Jaworski D., Kamei N., Glabe C.G.;
"Identification of a 97-kDa heat shock protein from *S. franciscanus*
ovaries with 94% amino acid identity to the *S. purpuratus* egg surface
receptor for sperm";
Dev. Biol. 184:31-37(1997).

-1- SUBCELLULAR LOCATION: CYTOPLASMIC (POTENTIAL).
-1- SIMILARITY: BELONGS TO THE HEAT SHOCK PROTEIN 70 FAMILY.

This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation
at the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
or send an email to license@isb-sib.ch).

EMBL: U69254; AAB09038.1; -
DR HSSP: P19120; 1MGC.
DR INTERPRO: IPR001023; -
DR PRAM: PR00012; HSP70_1;
DR PROSITE: PS00287; HSP70_1; FALSE NEG.
DR PROSITE: PS00329; HSP70_2; FALSE NEG.
DR PROSITE: PS01036; HSP70_3; 1.
KW ATP-binding.
SQ SEQUENCE 886 AA; 98446 MW; 252177643BCFEDD8 CRC64;

Query Match 38.6%; Score 44; DB 1; Length 886;
Best Local Similarity 88.9%; Pred. No. 20;
Matches 8; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTTEGEOK 9
DB 846 APTTEGEOK 854

RESULT 10
ID AC15_MOUSE STANDARD; PRT; 1131 AA.
AC P35601;
DT 01-JUN-1994 (Rel. 29, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE ACTIVATOR 1 140 KDA SUBUNIT (REPLICATION FACTOR C LARGE SUBUNIT) (A1
DE 140 KDA SUBUNIT) (REF-C 140 KDA SUBUNIT) (ACTIVATOR 1 LARGE SUBUNIT)
DE (A1-P15) (DIFFERENTIATION SPECIFIC ELEMENT BINDING PROTEIN)
DE (ISRE-BINDING PROTEIN).
GN RECI OR RECCI OR IBF-1.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-BALB/C;
RX MEDLINE: 94089669.
RA Burdelo P.D., Utani A., Pan Z., Yamada Y.;

"Cloning of the large subunit of activator 1 (replication factor C) reveals homology with bacterial DNA ligases.";
 Proc. Natl. Acad. Sci. U.S.A. 90:11543-11547(1993).
 [2]
 SEQUENCE FROM N.A.
 TISSUE=LIVER;
 MEDLINE: 9415835.
 Luckow B., Bunz F., Stillman B., Lichter P., Schuetz G.;
 "Cloning, expression, and chromosomal localization of the 140-kilodalton subunit of replication factor C from mice and humans.";
 Mol. Cell. Biol. 14:1626-1634(1994).
 [3]
 SEQUENCE FROM N.A.
 STRAIN=SWISS;
 MEDLINE: 95388065.
 McGehee Habener J.F.;
 "Differentiation-specific element binding protein (DSEB) binds to a defined element in the promoter of the angiotensinogen gene required for the irreversible induction of gene expression during differentiation of 3T3-L1 adipoblasts to adipocytes.";
 Mol. Endocrinol. 9:487-501(1995).
 [4]
 SEQUENCE FROM N.A.
 Haque S.J.;
 Submitted (FEB-1994) to the EMBL/Genbank/DBJ databases.
 [5]
 SEQUENCE OF 1-565 FROM N.A.
 STRAIN=LAI1;
 Lossie A.C., Haugen B.H., Wood W.M., Camper S.A., Gordon D.F.;
 Submitted (OCT-1994) to the EMBL/Genbank/DBJ databases.
 [6]
 SEQUENCE OF 354-528 FROM N.A.
 MEDLINE: 9029765.
 Haque S.J., Kumar A., Fischer T., Rutherford M.N., Williams B.R.;
 "Evaluation of inter- and intramolecular primary structure homologues of interferons by a Monte Carlo method.";
 J. Interferon Res. 10:31-31(1990).
 J. Interferon Res. 10:31-31(1990).
 -1- FUNCTION: THE ELONGATION OF PRIMED DNA TEMPLATES BY DNA POLYMERASE DELTA AND EPSILON REQUIRES THE ACTION OF THE ACCESSORY PROTEINS PCNA AND ACTIVATOR 1. THE 140 SUBUNIT BINDS TO THE PRIMER-TEMPLATE JUNCTION.
 -1- SUBUNIT: HETEROPEPTAMER OF SUBUNITS OF 140/145, 40, 38, 37, AND 36.5 KDA THAT FORMS A COMPLEX WITH PCNA IN THE PRESENCE OF ATP.
 -1- SUBCELLULAR LOCATION: NUCLEAR.
 -1- SIMILARITY: LOCAL, TO BACTERIAL DNA LIGASES.
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
 CC
 DR EMBL: U01222; AAA21643.1;
 DR EMBL: X72711; CAAS1260.1;
 DR EMBL: U36441; AAA79698.1;
 DR EMBL: U07157; AAC52140.1;
 DR EMBL: U15037; AAB60452.1;
 DR MGD: MGI:97891; RECC1.
 DR INTERPRO: IPR001357;
 DR PFM: PFO0533; BRCT.1.
 DR PROSITE: PS0172; BRCT.1.
 DR DNA replication; ATP-binding; Transcription regulation; DNA-binding; Activator; Nuclear protein.
 KM NP BIND 635 751
 FT ZN BIND 734 751
 FT DOMAIN 1104 1108
 FT DOMAIN 354 528
 FT SIMILAR 398 470
 FT CONFLICT 66 66
 Y -> N (IN REF. 3).

FT CONFLICT 187 187 E -> EPPCISLIFGID (IN REF. 4).
 FT CONFLICT 254 254 V -> A (IN REF. 5).
 FT CONFLICT 559 559 N -> S (IN REF. 4).
 FT CONFLICT 614 614 MISSING (IN REF. 3 AND 4).
 FT CONFLICT 945 945 S -> N (IN REF. 1).
 FT CONFLICT 1071 1071 T -> A (IN REF. 3).
 FT CONFLICT 1104 1104 K -> Q (IN REF. 4).
 SQ SEQUENCE 1131 AA: 125984 MW: A6FAF970A7F9E94 CRC64;
 Query Match 38.6%; Score 44; DB 1; Length 1131;
 Best Local Similarity 44.4%; Pred. No. 26;
 Matches 8; Conservative 4; Mismatches 6; Indels 0; Gaps 0;
 Oy 3 TTEGKSHVYKFDY 20
 Db 995 TSQVGAQHYKIMDTY 1012
 RESULT 11
 YNAJ_BACSU STANDARD; PRT; 463 AA.
 ID YNAJ_BACSU
 AC P94488;
 DT 15-DEC-1998 (Rel. 37, Created)
 DT 15-DEC-1998 (Rel. 37, Last sequence update)
 DT 30-MAY-2000 (Rel. 39, Last annotation update)
 DE HYPOTHETICAL SYMPORTER IN GLNA-XINB INTERGENIC REGION.
 GN YNAJ.
 OS Bacillus subtilis.
 OC Bacteria; Firmicutes; Bacillus/Clostridium group;
 CC Bacillus/staphylococcus group; Bacillus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Borchert S., Klein C., Pilsa B., Hammeleann M., Ettian K.D.;
 "Sequencing of a 26 kb region of the Bacillus subtilis genome downstream of spovJ.";
 Submitted (FEB-1997) to the EMBL/Genbank/DBJ databases.
 RL -1- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL).
 -1- SIMILARITY: BELONGS TO THE SODIUM:GALACTOSIDE SYMPORTER FAMILY (SGF).
 CC
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
 CC
 DR EMBL: U66480; AAB41090.1;
 DR EMBL: Z99113; CAB13641.1;
 DR SUBTILIST: BG12622; YNAJ.
 DR INTERPRO: IPR001927;
 DR PFM: PFO1236; Na.Galacto_symp.1.
 DR PROSITE: PS00872; NA.GALACTOSIDE_SYMP.1.
 KM Hypothetical protein; Transport; Transmembrane; Symport.
 FT TRANSMEM 37 57
 FT TRANSMEM 84 104
 FT TRANSMEM 112 132
 FT TRANSMEM 156 176
 FT TRANSMEM 186 206
 FT TRANSMEM 237 257
 FT TRANSMEM 271 291
 FT TRANSMEM 311 331
 FT TRANSMEM 334 354
 FT TRANSMEM 367 387
 FT TRANSMEM 408 428
 SQ SEQUENCE 463 AA: 51534 MW: B5F0733048023FF2 CRC64;
 Query Match 37.7%; Score 43; DB 1; Length 463;
 Best Local Similarity 61.5%; Pred. No. 15;
 Matches 8; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

```

OY      8  OKSHEVIRKEMDVY  20
      ||| | ||| | :
DB      216  OKSEKIRKTFDIF  228

RESULT  12
YJH1_YEAST
ID      YJH1_YEAST      STANDARD:      PRT:      574 AA.
AC      P40360:
DT      01-FEB-1995 (Rel. 31, Created)
DT      01-FEB-1995 (Rel. 31, Last sequence update)
DT      15-JUL-1998 (Rel. 36, Last annotation update)
DE      HYPOTHEETICAL 65.6 KDA PROTEIN IN SMC3-MRPL8 INTERGENIC REGION.
GN      YJ1071W OR J1091 OR HRB574.
OS      Saccharomyces cerevisiae (Baker's yeast).
OC      Eukaryota; Fungi; Ascomycota; Saccharomycetes; Saccharomycetales;
OC      Saccharomycetaceae; Saccharomyces.
RN      (1)
RP      SEQUENCE FROM N.A.
RC      STRAIN-S288C;
RX      MEDLINE: 95282514.
RA      Vandenbol M., Durand P., Dion C., Portetelle D., Hilger F.;
RT      "Sequence of a 17.1 kb DNA fragment from chromosome X of
RT      Saccharomyces cerevisiae includes the mitochondrial ribosomal protein
RT      L8."
RL      Yeast 11:57-60(1995).
RN      [2]
RP      SEQUENCE FROM N.A.
RC      STRAIN-S288C;
RA      Sor F.J.;
RL      Submitted (JUN-1995) to the EMBL/GenBank/DBJ databases.
CC      -----
CC      This SWISS-PROT entry is copyright. It is produced through a collaboration
CC      between the Swiss Institute of Bioinformatics and the EMBL outstation --
CC      the European Bioinformatics Institute. There are no restrictions on its
CC      use by non-profit institutions as long as its content is in no way
CC      modified and this statement is not removed. Usage by and for commercial
CC      entities requires a license agreement (see http://www.isb-sib.ch/announce/
CC      or send an email to license@isb-sib.ch).
CC      -----
DR      EMBL; Z34388; CAA84051.1; -
DR      EMBL; Z49346; CAA89363.1; -
DR      EMBL; X88851; CAA61310.1; -
DR      PIR; S47119; S47119.
DR      SGP; S0003607; YJ1071W.
KW      Hypothetical protein.
SQ      SEQUENCE 574 AA; 65610 MW; 167456A4900B7D59 CRC64;

Query Match      37.7%; Score 43; DB 1; Length 574;
Best Local Similarity 44.4%; Pred. No. 19;
Matches 8; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

OY      4  TEGEOKSHEVIRKEMDVYC  21
      | | : | | | | |
DB      160  TASEFMTRKDVAFEMDCLC  177

RESULT  13
TPS2_YEAST
ID      TPS2_YEAST      STANDARD:      PRT:      896 AA.
AC      P31688;
DT      01-JUL-1993 (Rel. 26, Created)
DT      01-OCT-1996 (Rel. 34, Last sequence update)
DT      01-NOV-1997 (Rel. 35, Last annotation update)
DE      TREHALOSE-PHOSPHATASE (EC 3.1.3.12) (TREHALOSE 6-PHOSPHATE
DE      PHOSPHATASE) (TPP).
GN      TPS2 OR PER3 OR YDR074W OR YD8554.07.
OS      Saccharomyces cerevisiae (Baker's yeast).
OC      Eukaryota; Fungi; Ascomycota; Saccharomycetes; Saccharomycetales;
OC      Saccharomycetaceae; Saccharomyces.
RN      (1)

```

RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
 RP STRAIN-C13-ABYS86;
 RX MEDLINE: 93185647.
 RA de Virgilio C., Buerckert N., Bell W., Jenoe P., Boller T.,
 RA Wiemken A.;
 RT "Disruption of TPS2, the gene encoding the 100-kDa subunit of the
 RT trehalose-6-phosphate synthase/phosphatase complex in *Saccharomyces*
 RT *cerevisiae*, causes accumulation of trehalose-6-phosphate and loss of
 RT trehalose-6-phosphate phosphatase activity.";
 RL Eur. J. Biochem. 212:315-323(1993).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN-S288C / AB972;
 RA Richards C., Harris D.E., Barrell B.G., Rajandream M.A.;
 RL Submitted (NOV-1994) to the EMBL/GenBank/DBJ databases.
 RN [3]
 RP SEQUENCE FROM N.A.
 RA Foury F., Joniaux J.-L., Purnelle B., Coster F., Goffeau A.;
 RL Submitted (JUL-1996) to the EMBL/GenBank/DBJ databases.
 RN [4]
 RP SEQUENCE OF 608-896 FROM N.A.
 RC STRAIN-WM303-1A;
 RX MEDLINE: 92017761.
 RA Ronne H., Carlberg M., Hu G.-Z., Nehlin J.O.;
 RT "Protein phosphatase 2A in *Saccharomyces cerevisiae*: effects on cell
 RT growth and bud morphogenesis.";
 RL Mol. Cell. Biol. 11:4876-4884(1991).
 CC -1- CATALYTIC ACTIVITY: TREHALOSE 6-PHOSPHATE + H(2)O = TREHALOSE +
 CC ORTHOPHOSPHATE.
 CC -1- SUBUNIT: TREHALOSE SYNTHASE/PHOSPHATASE COMPLEX CONTAINS THREE
 CC OR FOUR POLYPEPTIDES OF 56 KDA (TPS1), 102 KDA (TPS2), 115 KDA
 CC (TPS3) AND 323 KDA (TSL1).
 CC -1- INDUCTION: INDUCED BY HEAT SHOCK; REPRESSED BY GLUCOSE.
 CC -1- SIMILARITY: TO THE E. COLI ENZYME (GENE OTSP).
 CC -1- SIMILARITY: CONTAINS A DOMAIN FOUND IN ALL THE PROTEINS OF THE
 CC TPS COMPLEX;
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: X70694; CAA50025.1; -
 DR EMBL: Z46796; CAA86796.1; -
 DR EMBL: Z74370; CAA98893.1; -
 DR EMBL: X58858; CAA41661.1; -
 DR PIR: S17482; S17482.
 DR PIR: S30052; S30052.
 DR SGD: S0002481; TPS2.
 DR INTERPRO: IPR001830; -
 DR Pfam, PF00982; trehalosep_syn. 1.
 KW HydroLase; Heat shock.
 FT DOMAIN 1 554 TPS COMPLEX DOMAIN.
 FT CONFLICT 48: F -> Y (IN REF. 1).
 FT CONFLICT 289: N -> D (IN REF. 1).
 FT CONFLICT 542: Q -> K (IN REF. 1).
 FT CONFLICT 546: N -> D (IN REF. 1).
 FT CONFLICT 549: M -> V (IN REF. 1).
 FT SEQUENCE 896 AA; 102976 MW; E349672CCDA9349 CRC64;

Query Match	37.3%	Score 42.5	DB 1	Length 896
Best local Similarity	36.4%	Pred. No. 36		
Matches 8	Conservative	6	Mismatches 5	Indels 3
				Gaps 1
QY	2	PTTEGPOKS-HEVIKEMDVY 20		
	1	: : :		
Db	165	PSNEGEGERNMIDYKFNENAY 186		

```

RESULT 14
PROB_CYPAP
ID PROB_CYPAP STANDARD: PRT: 1265 AA.
AC P48120;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)
DE DNA-DIRECTED RNA POLYMERASE BETA* CHAIN (EC 2.7.7.6).
GN RPOC2.
OS Cyanophora paradoxa.
OC Cyanelle.
OC Eukaryota: Glaucocystophyceae: Cyanophoraceae: Cyanophora.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-LB555 / PRINGSHEIM.
RA Strewalt V.L., Michalowski C.B., Luffelhardt W., Bohnert H.J.,
RA Bryant D.A.;
RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: DNA-DEPENDENT RNA POLYMERASE CATALYZES THE TRANSCRIPTION
CC OF DNA INTO RNA USING THE FOUR RIBONUCLEOSIDE TRIPHOSPHATES AS
CC SUBSTRATES.
CC -1- CATALYTIC ACTIVITY: N NUCLEOSIDE TRIPHOSPHATE - N PYROPHOSPHATE +
CC RNA(N).
CC -1- SUBUNIT: IN CYANELLE THE RNA POLYMERASE IS COMPOSED OF FOUR
CC SUBUNITS: ALPHA, BETA, BETA', AND BETA".
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; U30821; AAA81259.1;
DR MENDEL; 16051; CYAPA:RPOC2:mn16051.
DR INTERPRO; IPR000722;
DR PFAM; PF00623; RNA.pol.A; 1.
KW Transferrase: Transcription: DNA-directed RNA polymerase; Cyanelle.
SQ SEQUENCE 1265 AA; 142137 MW; D2BD4A926A7CA911 CRC64;

Query Match
Best Local Similarity 37.3%; Score 42.5; DB 1; Length 1265;
Matches 8; Conservative 7; Mismatches 5; Indels 1; Gaps 1;

QY 1 APTTEGQKSHVIR-FMDVY 20
Db 1046 APLSEGDISVHEILEIFNLY 1066

RESULT 15
RS27_XENLA STANDARD: PRT: 83 AA.
AC P47904;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-FEB-1996 (Rel. 33, Last annotation update)
DE 40S RIBOSOMAL PROTEIN 527.
GN RPS27.
OS Xenopus laevis (African clawed frog).
OC Eukaryota: Metazoa: Chordata: Vertebrata: Euteleostomi;
OC Amphibia: Batrachia: Anura: Mesobatrachia: Pipoidae; Pipidae;
OC Xenopodidae; Xenopus.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Ovary;
RA Ladomery M.R., Sommerville J.;
RL Submitted (APR-1993) to the EMBL/GenBank/DBJ databases.
CC -1- SIMILARITY: BELONGS TO THE S27E FAMILY OF RIBOSOMAL PROTEINS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

```

```

CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; X71350; CA50485.1;
DR INTERPRO; IPR000592;
DR PFAM; PF01667; Ribosomal_S27e; 1.
DR PROSITE; PS01168; RIBOSOMAL_S27E; 1.
KW Ribosomal protein; Zinc-finger; Metal-binding.
FT INIT_MET 0; BY SIMILARITY.
FT ZN_FING 36; C4-TYPE.
SQ SEQUENCE 83 AA; 9344 MW; FDB799C365D61CCF CRC64;

Query Match
Best Local Similarity 36.8%; Score 42; DB 1; Length 83;
Matches 10; Conservative 4; Mismatches 6; Indels 8; Gaps 1;

QY 2 PTTEGQKSHVIR-----FMDVYC 21
Db 9 PTPEEKRRKRRKRVOSPNVSFMDVYC 36

```

Search completed: November 9, 2000, 15:40:20
Job time: 573 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:39:35 ; Search time 106.63 seconds
(without alignments)
18.389 Million cell updates/sec

Title: US-09-266-543-5
Perfect score: 114
Sequence: 1 APTEGEQKSHVIFKMDVYC 21

Scoring table:
BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues
Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: SPTEMBL_14:*
2: sp-archaea:*
3: sp-bacteria:*
4: sp-fungi:*
5: sp-invertebrate:*
6: sp-mammal:*
7: sp-mhc:*
8: sp-organelle:*
9: sp-phage:*
10: sp-plant:*
11: sp-rodent:*
12: sp-virus:*
13: sp-vertebrate:*
14: sp-unclassified:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	105	92.1	141	11	070123 mus musculus
2	101	88.6	110	11	088911 rattus norv
3	101	88.6	146	11	090XG6 ratu
4	101	88.6	214	11	090XG7 ratu
5	91	79.8	190	11	090X39 spat
6	79	69.3	190	6	077643 ovis
7	76	66.7	190	6	09XSP3 canis fami
8	76	66.7	208	6	09XSP4 canis fami
9	76	66.7	214	6	09XSP5 canis fami
10	65.5	57.5	147	4	09UH58 homo sapien
11	65.5	57.5	174	4	09UH58 homo sapien
12	65.5	57.5	191	4	075875 homo sapien
13	65.5	57.5	209	4	060720 homo sapien
14	65.5	57.5	254	4	016889 homo sapien
15	50	43.9	148	13	042571 xenopus lae
16	50	43.9	194	13	042572 xenopus lae
17	48	42.1	144	13	073822 brachydanio
18	48	42.1	188	13	073682 brachydanio
19	47.5	41.7	360	5	045344 caenorhabd

20	46	40.4	436	10	022206	022206 arabidopsis
21	46	40.4	2272	5	017329	017329 caenorhabd
22	44	38.6	180	2	0925A5	0925A5 streptomyce
23	44	38.6	405	3	014349	014349 schizosacch
24	44	38.6	1455	11	09R0S4	09R0S4 mus musculu
25	44	38.6	1455	11	09R0G8	09R0G8 mus musculu
26	43	37.7	332	1	029749	029749 archaeoglob
27	43	37.7	360	4	09UG88	09UG88 homo sapien
28	43	37.7	646	10	09SLB0	09SLB0 arabidopsis
29	43	37.7	713	5	09V5N3	09V5N3 drosophila
30	43	37.7	732	5	09V5N4	09V5N4 drosophila
31	43	37.7	1166	1	P74759	P74759 sulfolobus
32	43	37.7	1166	4	09Y2I3	09Y2I3 homo sapien
33	42.5	37.3	314	5	045748	045748 caenorhabd
34	42	36.8	86	3	09US10	09US10 schizosacch
35	42	36.8	137	5	09U757	09U757 caenorhabd
36	42	36.8	151	10	09ZVF2	09ZVF2 arabidopsis
37	42	36.8	350	2	060253	060253 escherichia
38	42	36.8	355	1	059060	059060 pyrococcus
39	42	36.8	379	2	046160	046160 corynebacte
40	42	36.8	499	4	09Y439	09Y439 homo sapien
41	42	36.8	610	5	019335	019335 caenorhabd
42	42	36.8	630	5	09VMU3	09VMU3 drosophila
43	42	36.8	730	12	09Q9X2	09Q9X2 rhizoctonia
44	42	36.8	917	10	09SR51	09SR51 arabidopsis
45	42	36.8	3268	3	Q03280	Q03280 saccharomyc

ALIGNMENTS

RESULT 1
ID 070123 PRELIMINARY; PRT; 141 AA.
AC 070123;
DT 01-AUG-1998 (TREMUREL. 07, Created)
DT 01-AUG-1998 (TREMUREL. 07, Last sequence update)
DT 01-JUN-2000 (TREMUREL. 14, Last annotation update)
DE VEGF115.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-ICR;
RX MEDLINE; 95101726.
RA Sugihara T., Kaul S.C., Mitsui Y., Wadhwa R.;
RT "Enhanced expression of multiple forms of VEGF is associated with
RT spontaneous immortalization of murine fibroblasts."
RL Biochim. Biophys. Acta 1224:365-370(1994).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN-ICR;
RX MEDLINE; 98112857.
RA Sugihara T., Wadhwa R., Kaul S.C., Mitsui Y.;
RT growth factor, VEGF 115."
RL J. Biol. Chem. 273:3033-3038(1998).
DR EMBL; U50279; AAC05442.1; -.
DR HSSP; P15692; IVP.
DR INTERPRO; IPR000072; -.
DR PRAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR PRODOM; PD001629; -; 1.
SQ SSQDNCE 141 AA; 15550 MW; A27C4EF5A7071338 CRC64;

Query Match 92.1%; Score 105; DB 11; Length 141;
Best Local Similarity 100.0%; Pred. No. 2.2e-09;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 APTEGEQKSHVIFKMDVYC 20
|||||

Db 27 APTEGEOKSHVYKEMDVY 46

```
RESULT 2
ID 088911 PRELIMINARY; PRT; 110 AA.
AC 088911;
DT 01-NOV-1998 (TREMblrel. 08, Created)
DT 01-NOV-1998 (TREMblrel. 08, last sequence update)
DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR A 110 PRECURSOR (FRAGMENT).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SPRAGUE-DAWLEY; TISSUE=PENIS;
RA Burchardt M., Burchardt T., Chen M.-W., Shabsigh A., de la Taille A.,
RA Bultman R., Shabsigh R.;
RT "Expression of Messenger RNA Splice Variants for Vascular Endothelial
RT Growth Factor in the Adult Rat and Human Penis.";
RL Submitted (JUL-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF080594; AAC36708.1; -.
DR HSSP; P15692; IVP.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
FT NON_TER
SQ SEQUENCE 110 AA; 12713 MW; B81B79AC08D89F06 CRC64;
```

Query Match 88.6%; Score 101; DB 11; Length 110;
Best Local Similarity 90.0%; Pred. No. 7.4e-09;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTEGEOKSHVYKEMDVY 20

```
Db 1 APTEGEOKSHVYKEMDVY 20
|||||:|||||
ID 090XG6 PRELIMINARY; PRT; 146 AA.
AC 090XG6;
DT 01-MAY-2000 (TREMblrel. 13, Created)
DT 01-MAY-2000 (TREMblrel. 13, last sequence update)
DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR-A120.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A.
RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;
RT "Developmental expression of vascular endothelial growth factor-A
RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat
RT mesenter muscle.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF215726; AAF19212.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 146 AA; 17161 MW; AF92979C38EF532A CRC64;
```

Query Match 88.6%; Score 101; DB 11; Length 146;
Best Local Similarity 90.0%; Pred. No. 9.9e-09;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTEGEOKSHVYKEMDVY 20

Db 27 APTEGEOKSHVYKEMDVY 46

```
RESULT 4
ID 090XG7 PRELIMINARY; PRT; 214 AA.
AC 090XG7;
DT 01-MAY-2000 (TREMblrel. 13, Created)
DT 01-MAY-2000 (TREMblrel. 13, last sequence update)
DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR-A188.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A.
RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;
RT "Developmental expression of vascular endothelial growth factor-A
RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat
RT mesenter muscle.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF215725; AAF19211.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 214 AA; 25239 MW; 60FBB876F5304946 CRC64;
```

Query Match 88.6%; Score 101; DB 11; Length 214;
Best Local Similarity 90.0%; Pred. No. 1.5e-08;
Matches 18; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 APTEGEOKSHVYKEMDVY 20

```
Db 27 APTEGEOKSHVYKEMDVY 46
|||||:|||||
ID 090X39 PRELIMINARY; PRT; 190 AA.
AC 090X39;
DT 01-MAY-2000 (TREMblrel. 13, Created)
DT 01-MAY-2000 (TREMblrel. 13, last sequence update)
DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;
OC Spalax.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 9913148.
RA Arivivi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;
RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax
RT ehrenbergi: the role of vascular endothelial growth factor.";
RL FBS Lett. 452:133-140(1999).
DR EMBL; AF186236; AAD56245.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22488 MW; 228383BC65F0BE CRC64;
```

Query Match 79.8%; Score 91; DB 11; Length 190;
Best Local Similarity 72.0%; Pred. No. 5.3e-07;
Matches 18; Conservative 1; Mismatches 2; Indels 4; Gaps 1;

QY 1 APTEGEOKSHVYKEMDVY 21

Db 27 APTEGEOKSHVYKEMDVY 51

RESULT 6

```

077643
ID 077643      PRELIMINARY;      PRT:      190 AA.
AC 077643:
DT 01-NOV-1998 (TREMBlrel. 08, Created)
DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
OC Bovidae; Caprinae; Ovis.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-COLUMBIA-RAMBOULLET;
RA Cheung C.Y., Brace R.A.;
RT "ovine vascular endothelial growth factor: Nucleotide sequence and
expression in fetal tissues";
RL Growth Factors 0:0-0(1998).
DR EMBL: AF071015; AAC23608.1; -.
DR HSSP: P15692; 2YGH.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
DR PRODOM: PD001629; -; 1.
SQ SEQUENCE 190 AA; 22342 MW; 0D5E3B35C53E739 CRC64;

Query Match      69.3%; Score 79; DB 6; Length 190;
Best Local Similarity 75.0%; Pred. No. 4,4e-05;
Matches 15; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

OY 1 APTGEGOKSHEVVKFMDVY 20
Db 27 APMAEGGOKPHEVVKFMDVY 46

RESULT 7
O9XSF3      PRELIMINARY;      PRT:      190 AA.
ID O9XSF3:
AC O9XSF3:
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 164.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-HEART;
RA Jjingling L., Roque R.S.;
RT Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF133248; AAD29682.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22292 MW; 205350BC9085CE0 CRC64;

Query Match      66.7%; Score 76; DB 6; Length 190;
Best Local Similarity 70.0%; Pred. No. 0.00013;
Matches 14; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

OY 1 APTGEGOKSHEVVKFMDVY 20
Db 27 APMAEGGOKPHEVVKFMDVY 46

RESULT 8
O9XSF4      PRELIMINARY;      PRT:      208 AA.
ID O9XSF4:

```

```

AC O9XSF4:
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 182.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-HEART;
RA Jjingling L., Roque R.S.;
RT Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF133249; AAD29683.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
SQ SEQUENCE 208 AA; 24400 MW; CF77AC591F5C2BBE CRC64;

Query Match      66.7%; Score 76; DB 6; Length 208;
Best Local Similarity 70.0%; Pred. No. 0.00015;
Matches 14; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

OY 1 APTGEGOKSHEVVKFMDVY 20
Db 27 APMAEGGOKPHEVVKFMDVY 46

RESULT 9
O9XSF5      PRELIMINARY;      PRT:      214 AA.
ID O9XSF5:
AC O9XSF5:
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 188.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-HEART;
RA Jjingling L., Roque R.S.;
RT Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF133250; AAD29684.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
SQ SEQUENCE 214 AA; 25151 MW; 2269981AFBC60058 CRC64;

Query Match      66.7%; Score 76; DB 6; Length 214;
Best Local Similarity 70.0%; Pred. No. 0.00015;
Matches 14; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

OY 1 APTGEGOKSHEVVKFMDVY 20
Db 27 APMAEGGOKPHEVVKFMDVY 46

RESULT 10
O9UH58      PRELIMINARY;      PRT:      147 AA.
ID O9UH58:
AC O9UH58:
DT 01-MAY-2000 (TREMBlrel. 13, Created)
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR ISOFORM 121 PRECURSOR.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniala; Vertebrata; Euteleostomi;

```

OC Mammalia; Eutheria; Primates; Catarrhini; Homiinae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Sato J.D., Whitney R.G.;
 RT "Human cDNA for vascular endothelial growth factor isoform VEGF121."
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AF14570; AAF19659.1; -
 DR INTERPRO: IPR000072; -
 DR PFM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 KW Signal.
 FT SIGNAL
 SQ SEQUENCE 147 AA; 17219 MW; DDFAD6994249BED6 CRC64;

Query Match 57.5%; Score 65.5; DB 4; Length 147;
 Best Local Similarity 66.7%; Pred. No. 0.0049;
 Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;
 QY 1 APTE-GEOKSHEVYKEMDVY 20
 DB 27 APMAEGGQNHHEVYKEMDVY 47

RESULT 11
 ID 090123 PRELIMINARY; PRT: 174 AA.
 AC 090123;
 DT 01-MAY-2000 (TREMBlrel. 13, Created)
 DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE VASCULAR PERMEABILITY FACTOR 148.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiinae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-GLOMERULI;
 RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.M.,
 RA Harper S.J.;
 RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA
 RT and receptor mRNA expression in human glomeruli, and the
 RT identification of VEGF148 mRNA, a novel truncated splice variant."
 RL Ident. Sci. 97:303-312(1999).
 DR EMBL: AF091352; AAD55345.1; -
 DR INTERPRO: IPR000072; -
 DR PFM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 SQ SEQUENCE 174 AA; 20218 MW; AE88400CA757644 CRC64;

Query Match 57.5%; Score 65.5; DB 4; Length 174;
 Best Local Similarity 66.7%; Pred. No. 0.0058;
 Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;
 QY 1 APTE-GEOKSHEVYKEMDVY 20
 DB 27 APMAEGGQNHHEVYKEMDVY 47

RESULT 12
 ID 075875 PRELIMINARY; PRT: 191 AA.
 AC 075875;
 DT 01-NOV-1998 (TREMBlrel. 08, Created)
 DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiinae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.

RC TISSUE-BREAST;
 RX MEDLINE: 98119755.
 RA Claffey K.P., Shin S.-C., Mullen A., Dziennis S., Cusick J.L.,
 RA Abrams K.R., Lee S.W., DeMar M.;
 RT "Identification of a human VEGF/VEGF 3' untranslated region mediating
 RT hypoxia-induced mRNA stability."
 RL Mol. Biol. Cell 9:469-481(1998).
 DR EMBL: AF022375; AAC63143.1; -
 DR HSSP: P15692; 1VP;
 DR INTERPRO: IPR000072; -
 DR PFM: PF00341; PDGF; 1.
 DR PRODOM: PD001629; -; 1.
 SQ SEQUENCE 191 AA; 22320 MW; B5E435838C72715B CRC64;

Query Match 57.5%; Score 65.5; DB 4; Length 191;
 Best Local Similarity 66.7%; Pred. No. 0.0064;
 Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;
 QY 1 APTE-GEOKSHEVYKEMDVY 20
 DB 27 APMAEGGQNHHEVYKEMDVY 47

RESULT 13
 ID 060720 PRELIMINARY; PRT: 209 AA.
 AC 060720;
 DT 01-AUG-1998 (TREMBlrel. 07, Created)
 DT 01-MAY-1999 (TREMBlrel. 10, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE VEGF183 PROTEIN PRECURSOR (VASCULAR ENDOTHELIAL GROWTH FACTOR 183).
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiinae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-KIDNEY;
 RX MEDLINE: 99096474.
 RA Lei J., Jiang A., Pei D.;
 RT "Identification and characterization of a new splicing variant of
 RT vascular endothelial growth factor: VEGF183."
 RL Biochem. Biophys. Acta, Gene Struct. Expr. 1443:400-406(1998).
 RN [2]
 RP SEQUENCE OF 114-209 FROM N.A.
 RC TISSUE-RETINA;
 RA Jiangling L., Roque R.S.;
 RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AF010438; CA09179.1; -
 DR EMBL: AF062645; AAC16730.1; -
 DR HSSP: P15692; 2VP;
 DR INTERPRO: IPR000072; -
 DR PFM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 DR PRODOM: PD001629; -; 1.
 KW Signal.
 FT SIGNAL
 FT CHAIN 27 .209 VEGF183 PROTEIN.
 SQ SEQUENCE 209 AA; 24422 MW; F01CCACD945DCA CRC64;

Query Match 57.5%; Score 65.5; DB 4; Length 209;
 Best Local Similarity 66.7%; Pred. No. 0.0071;
 Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;
 QY 1 APTE-GEOKSHEVYKEMDVY 20
 DB 27 APMAEGGQNHHEVYKEMDVY 47

RESULT 14
 Q16889

ID Q16889 PRELIMINARY; PRT: 254 AA.
AC Q16889;
DT 01-NOV-1996 (TREMBLREL. 01, Created)
DT 01-NOV-1998 (TREMBLREL. 08, Last sequence update)
DT 01-JUN-2000 (TREMBLREL. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
GN VEGF 206.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92168017.
RA Houck K.A., Ferrara N., Miner J., Cachianes G., Li B., Leung D.W.;
RT "The vascular endothelial growth factor family: identification of a
fourth molecular species and characterization of alternative splicing
of RNA."
RL Mol. Endocrinol. 5:1806-1814(1991).
DR EMBL: S85192; AAC63102.1; -.
DR EMBL: S85224; AAC63101.1; -.
DR EMBL: S85199; AAC63101.1; JOINED.
DR EMBL: S85201; AAC63101.1; JOINED.
DR EMBL: S85219; AAC63101.1; JOINED.
DR EMBL: S85222; AAC63101.1; JOINED.
DR HSSP: P15692; ZVPF.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
FT NON_TER 1
SQ SEQUENCE 254 AA; 29461 MM; 069DFE9B9723DBA8 CRC64;

Query Match 57.5%; Score 65.5; DB 4; Length 254;
Best Local Similarity 66.7%; Pred. No. 0.0087;
Matches 14; Conservative 1; Mismatches 5; Indels 1; Gaps 1;
OY 1 APTTE-GEOKSHEVIFKMDVY 20
||| | | |||:|||||
DB 49 APMAGGGGNHHEVYKFMVDY 69

RESULT 15
ID Q42571 PRELIMINARY; PRT: 148 AA.
AC Q42571;
DT 01-JAN-1998 (TREMBLREL. 05, Created)
DT 01-JAN-1998 (TREMBLREL. 05, Last sequence update)
DT 01-JUN-2000 (TREMBLREL. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 122.
GN VEGF.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidea; Pipidae;
OC Xenopodinae; Xenopus.
RN [1]
RP SEQUENCE FROM N.A.
RX Cleaver O., Tonissen K.F., Saha M.S., Kriegl P.A.;
RL Submitted (JUN-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF008593; AAB63679.1; -.
DR HSSP: P15692; ZVPF.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
DR PRODOM: PD001629; -. 1.
SQ SEQUENCE 148 AA; 17234 MM; 4AD153CA2F8B1E95 CRC64;

Query Match 43.9%; Score 50; DB 13; Length 148;
Best Local Similarity 56.2%; Pred. No. 1.5;
Matches 9; Conservative 3; Mismatches 4; Indels 0; Gaps 0;
OY 5 EGEOKSHEVIFKMDVY 20
||:| ||:|:|

DB 32 EGDHKTVEVFLKLY 47

Search completed: November 9, 2000, 15:39:36
Job time: 613 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:31:59 ; Search time 72.39 seconds
(without alignments)
35.942 Million cell updates/sec

Title: US-09-266-543-6

Perfect score: 237
Sequence: 1 CERRKHLFVOTCKSCSKNTD.....RCKAROLENERTCRDCKPRR 41

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :
1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	206	86.9	190	2 S52130	vascular endothelial
2	206	86.9	190	2 B40080	vascular endothelial
3	206	86.9	190	2 B44881	vascular endothelial
4	206	86.9	190	2 A43987	glioma-derived vas
5	206	86.9	214	2 A44881	vascular endothelial
6	206	86.9	232	2 A41551	vascular endothelial
7	206	86.9	188	2 JC4680	vascular endothelial
8	74	31.2	419	2 S69207	vascular endothelial
9	71	30.0	1700	2 S08167	vascular endothelial
10	70	29.5	160	2 J00542	Balblanc ring 3 pr
11	61	25.7	69	2 A55011	185K secretory pro
12	61	25.7	120	2 A33787	metallothionein-11
13	61	25.7	146	2 S57956	vascular endothelial
14	60.5	25.5	398	2 A35281	ovine vascular end
15	60	25.3	5376	2 T42215	Integumentary muci
16	59.5	25.1	593	2 S45281	zonadhesin - mouse
17	59	24.9	2703	1 A24420	coagulation factor
18	58.5	24.7	1187	2 T18355	notch protein - fr
19	58	24.5	1568	2 T09074	hypothetical prote
20	58	24.5	4307	2 T20721	semaphorin recepto
21	56	23.6	363	2 T39527	hypothetical prote
22	56	23.6	372	1 A32375	L-selectin precurs
23	55.5	23.4	603	2 S28941	coagulation factor
24	55	23.2	63	2 A34905	metallothionein 1
25	55	23.2	74	2 T24715	hypothetical prote
26	55	23.2	153	2 A33080	conglutin delta pr
27	55	23.2	425	2 T18582	hypothetical prote
28	54.5	23.0	57	1 SMKDS	metallothionein 2
29	54.5	23.0	75	2 B45206	metallothionein 2

30	54.5	23.0	128	2 I51295	vascular endothelial
31	54.5	23.0	651	2 T19477	hypothetical prote
32	54	22.8	147	2 A48194	thrombospin beta c
33	54	22.8	432	2 T37509	hypothetical prote
34	53.5	22.6	1106	2 T13938	gene shuttle craft
35	53.5	22.6	1106	2 T44598	hypothetical prote
36	53.5	22.6	1280	2 A39117	170K lectin precur
37	53	22.4	170	2 G64016	hypothetical prote
38	53	22.4	225	2 S25097	platelet-derived g
39	53	22.4	241	1 PFMGB	platelet-derived g
40	53	22.4	372	2 S23936	L-selectin precurs
41	53	22.4	376	2 JC4892	L-selectin precurs
42	52.5	22.2	683	1 RNZMB1	DNA-directed RNA p
43	52.5	22.2	1051	2 JC4091	glycoprotein A - p
44	52	21.9	146	2 S34049	phospholipase A2 (
45	52	21.9	335	2 T31559	hypothetical prote

ALIGNMENTS

RESULT 1
S52130
Vascular endothelial growth factor - pig
C:Species: Sus scrofa domestica (domestic pig)
C>Date: 14-Jul-1995 #sequence_revision 21-Jul-1995 #text_change 05-Nov-1999
C:Accession: S52130
R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.
Biochim. Biophys. Acta 1260, 235-238, 1995
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial gro-
A:Reference number: S52130; MUID:95143284
A:Accession: S52130
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <SHA>
A:Cross-references: GB:X81380; NID:9587559; PIDN:CA57143.1; PID:9587560

Query Match 86.9%; Score 206; DB 2; Length 190;
Best Local Similarity 90.9%; Pred. No. 2.4e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV---QTCKSCSKNTDSRCKAROLE-NERTCRDCKPRR 41
DB 147 ERRKHLFVQDPQTCKSCSKNTDSRCKAROLELNERTCRDCKPRR 190
||||| |
RESULT 2
B40080
Vascular endothelial growth factor precursor (version 2) - bovine
C:Species: Bos primigenius taurus (cattle)
C>Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 05-Nov-1999
C:Accession: B40080; B33787; A33255
R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A:Reference number: A40080; MUID:90069608
A:Accession: B40080
A:Molecule type: mRNA
A:Residues: 1-190 <LEU>
A:Cross-references: GB:M32976; NID:q163006; PIDN:AAA30502.1; PID:q163007
R:Risler, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Cr
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived gro
A:Reference number: A33787; MUID:90121225
A:Accession: B33787
A:Molecule type: mRNA
A:Residues: 27-190 <TIS>
A:Cross-references: GB:M31836; NID:q163808; PIDN:AAA30804.1; PID:q163809
R:Ferrara, N.; Henzel, W.J.
Biochem. Biophys. Res. Commun. 161, 851-858, 1989
A:Title: Pituitary follicular cells secrete a novel heparin-binding growth factor spe
A:Reference number: A33255; MUID:89286596

A:Accession: A33255
A:Molecule type: protein
A:Residues: 27-31 <FER>
C:Keywords: alternative splicing; glycoprotein
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>
F:100/Binding site: carbohydrate (asn) (covalent) #status predicted

Query Match 86.9%; Score 206; DB 2; Length 190;
Best Local Similarity 90.9%; Pred. No. 2,4e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERKHLFV---OTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 147 ERKHLFVODPOTCKCKNTDSRCKAROLELNERTCRCDCPRR 190

RESULT 3
B4481
Vascular endothelial growth factor-1 precursor - mouse
C:Species: Mus musculus (house mouse)
C>Date: 03-Feb-1994 #sequence_revision 03-Feb-1994 #text_change 05-Nov-1999
C:Accession: B4481; A43351; A61029
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992

A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A4481; MUID:92274860
A:Accession: B4481

A:Molecule type: mRNA

A:Residues: 1-190 <BRE>

A:Cross-references: GB:S38083; NID:g249856; PIDN:AAB22253.1; PID:g249859

A:Experimental source: embryo

A>Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBIIP:107623)

R:Claffey, K.P.; Wilkison, W.O.; Spiegelman, B.M.

J. Biol. Chem. 267, 16317-16322, 1992

A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti

A:Reference number: A43351; MUID:92355593

A:Accession: A43351

A:Molecule type: mRNA

A:Residues: 1-116/ER, 119-190 <CLA>

A:Cross-references: GB:M05200; NID:g202350; PIDN:AAA40547.1; PID:g202351

A>Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBIIP:110675)

R:Rosenblatt, R.A.; Megyesi, T.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.

Growth Factors 4, 53-59, 1990

A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial g

A:Reference number: A61029; MUID:91197543

A:Accession: A61029

A:Molecule type: protein

A:Residues: 27-38 <ROS>

C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein; mit

Query Match 86.9%; Score 206; DB 2; Length 190;
Best Local Similarity 90.9%; Pred. No. 2,4e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERKHLFV---OTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 147 ERKHLFVODPOTCKCKNTDSRCKAROLELNERTCRCDCPRR 190

RESULT 4
A35987
gloma-derived vascular endothelial cell growth factor - rat
C:Species: Rattus norvegicus (Norway rat)
C>Date: 16-Nov-1990 #sequence_revision 16-Nov-1990 #text_change 05-Nov-1999
C:Accession: A35987

R:Conn, G.; Bayne, M.L.; Soderman, D.D.; Krok, P.W.; Sullivan, K.A.; Palist, T.M.; Hope,
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990

A:Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is ho

A:Reference number: A35987; MUID:90207249

A:Accession: A35987

A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <CON>
A:Cross-references: GB:M32167; NID:g204287; PIDN:AAA41211.1; PID:g204288

Query Match 86.9%; Score 206; DB 2; Length 190;
Best Local Similarity 90.9%; Pred. No. 2,4e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERKHLFV---OTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 147 ERKHLFVODPOTCKCKNTDSRCKAROLELNERTCRCDCPRR 190

RESULT 5
A4481
Vascular endothelial growth factor-3 precursor - mouse
N:Contains: vascular endothelial growth factor-2; vascular permeability factor
C:Species: Mus musculus (house mouse)
C>Date: 03-Feb-1994 #sequence_revision 03-Feb-1994 #text_change 08-Oct-1999
C:Accession: A4481; C4481; A60932; S52136

R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.

Development 114, 521-532, 1992

A:Title: Expression of vascular endothelial growth factor during embryonic angiogenes

A:Reference number: A4481; MUID:92274860

A:Accession: A4481

A:Molecule type: mRNA

A:Residues: 1-214 <BRE>

A:Cross-references: GB:S37052; NID:g249856; PIDN:AAB22253.1; PID:g249857

A:Experimental source: embryo

A>Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBIIP:104678)

A:Accession: C4481

A:Molecule type: mRNA

A:Residues: 1-140/209-214 <BR2>

A:Cross-references: GB:S38100; NID:g249860; PIDN:AAB22254.1; PID:g249861

A:Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBIIP:107625)

R:Clausen, M.; Gerlach, H.; Gerlach, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan, Y

J. Exp. Med. 172, 1535-1545, 1990

A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces endot

A:Reference number: A60932; MUID:91079735

A:Accession: A60932

A:Molecule type: protein

A:Residues: 27-33 <CLA>

R:Singhara, T.; Kaul, S.C.; Mitsui, Y.; Wadhwa, R.

Biochim. Biophys. Acta 1224, 365-370, 1994

A:Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous

A:Reference number: S52136; MUID:95101726

A:Accession: S52136

A>Status: preliminary

A:Molecule type: protein

A:Residues: 27-46 <SIG>

C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.

C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodim

F:1-26/Domain: signal sequence #status predicted <SIG>

F:27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match 86.9%; Score 206; DB 2; Length 214;
Best Local Similarity 90.9%; Pred. No. 2,6e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERKHLFV---OTCKSCKNTDSRCKAROLE-NERTCRCDKPRR 41
Db 171 ERKHLFVODPOTCKCKNTDSRCKAROLELNERTCRCDCPRR 214

RESULT 6
A1551
Vascular endothelial growth factor 206 precursor - human

N:Alternate names: vascular permeability factor
N:Contains: vascular endothelial growth factor 121 (VEGF 121); VEGF 165; VEGF 189; VE

C:Species: Homo sapiens (man)

C>Date: 28-Aug-1992 #sequence, revision 28-Aug-1992 #text, change 05-Nov-1999
C/Accession: A41551; C41551; A40454; B40454; A40079; A40080; J01463; J01
R/Houck, K.A.; Ferreira, N.; Winer, J.; Cachanes, G.; Li, B.; Leung, D.W.
Mol. Endocrinol. 5, 1806-1814, 1991
A>Title: The vascular endothelial growth factor family: identification of a fourth molec
A/Reference number: A41551; MVID:92168017
A/Accession: A41551
A:Molecule type: mRNA
A:Residues: 1-232 <HOU1>
A/Cross-references: GB:S85192; NID:g246155; PID:g246156
A/Accession: C41551
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <HOU2>
A/Accession: B41551
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-141, 227-232 <HOU>
R/Titchner, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fiddes, J.C.; Ab
J. Biol. Chem. 266, 11947-11954, 1991
A>Title: The human gene for vascular endothelial growth factor. Multiple protein forms a
A/Reference number: A40454; MVID:91268072
A/Accession: A40454
A:Molecule type: DNA
A:Residues: 1-165, 183-232 <TI1>
A/Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB
A/Accession: B40454
A:Molecule type: DNA
A:Residues: 1-140, 'N', 183-232 <TI2>
A/Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB
A/Accession: C40454
A:Molecule type: DNA
A:Residues: 1-141, 227-232 <TI3>
A/Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978
R/Reck, P.J.; Hauser, S.D.; Kriegl, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.T.
Science 246, 1309-1312, 1989
A>Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF.
A/Reference number: A40079; MVID:90069609
A/Accession: A40079
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-165, 183-232 <KEC>
A/Cross-references: GB:M27281; NID:g340300; PIDN:AAA36807.1; PID:g340301
R/Leung, D.W.; Cachanes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A>Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A/Reference number: A40080; MVID:90069608
A/Accession: A40080
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <LEU>
A/Cross-references: GB:M32977; NID:g181970; PIDN:AAA35789.1; PID:g181971
R/Welndel, K.; Marne, D.; Welch, H.A.
Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992
A>Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial
A/Reference number: J01463; MVID:92231879
A/Accession: J01463
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <WE1>
A/Cross-references: EMBL:X62568; NID:g37658; PIDN:CAA44447.1; PID:g37659
A/Experimental source: AIDS-Kaposi's sarcoma cell
A/Accession: J01464
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 227-232 <WE2>
A/Experimental source: AIDS-Kaposi's sarcoma cell
R/Connolly, D.T.; Olander, J.V.; Heuvelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; Hay
J. Biol. Chem. 264, 20017-20024, 1989
A>Title: Human vascular permeability factor. Isolation from U937 cells.
A/Reference number: A34492; MVID:90062112
A/Accession: A34492
A:Molecule type: protein
A:Residues: 27-36; 43-49, 'R', 72-76, 'Q', 78-81; 59-71 <CON>
C/Comment: The most common of several alternatively spliced forms is VEGF 165.

```

C:Genetics:
A:Gene: GDB:VEGF
A:Cross-references: GDB:132244; OMIM:192240
A:Map position: 6p21-6p12
C:Function:
A:Description: promotes fluid and protein leakage from blood vessels
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular
F.1-332/Product: vascular endothelial growth factor 206 precursor #status predicted <
F.1-165,183-233/Product: vascular endothelial growth factor 189 precursor #status pre
F.1-141,227-233/Product: vascular endothelial growth factor 121 precursor #status pre
F.1-26/Domain: signal sequence #status predicted <Sig>
F.101/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match      86.9%; Score 206; DB 2; Length 232;
Best Local Similarity 90.9%; Pred. No. 2,7e-16;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV--OTCKSCSKNTDSRCKARQLE-NERTCRCKPRR 41
|||||  |||||||  |||||||  |||||||  |||||||  |||||||
Db 189 ERRKHLFVODPOTCKSCSKNTDSRCKARQLELNERTCRCKPRR 232

RESULT 7
JC4680
vascular endothelial growth factor-related factor 167 precursor - mouse
N:Alternate names: VRF 167 protein
C:Species: Mus musculus (house mouse)
C:Date: 10-May-1996 #sequence_revision 19-Jul-1996 #text_change 05-Nov-1999
C:Accession: JC4680
R:Tomson, S.; Lagercrantz, J.; Grimmond, S.; Sillins, G.; Nordenskjold, M.; Weber, G
Biochem. Biophys. Res. Commun. 220, 922-928, 1996
A:Title: Characterization of the murine VEGF-related factor gene.
A:Reference number: JC4679; MUID:96183052
A:Accession: JC4680
A:Molecule type: mRNA
A:Residues: 1-188 <TOW>
A:Cross-references: GB:U43877; NID:q1314335; PIDN:AAC52553.1; PID:q1314336
C:Comment: This factor is a mitogen, that is selective for endothelial cells, and bel
ar endothelial growth factors 167 and VEGF 186.
C:Genetics:
A:Gene: vrf
A:Map position: 19
A:Introns: 137/2
F.1-21/Domain: signal sequence #status predicted <Sig>
F.22-188/Product: vascular endothelial growth factor-related factor #status predicted

Query Match      35.9%; Score 85; DB 2; Length 188;
Best Local Similarity 42.9%; Pred. No. 0.0082;
Matches 18; Conservative 7; Mismatches 15; Indels 2; Gaps 2;

OY 2 ERRKHLFVOTCKSCSKNTD-SRCKARQLE-NERTCRCKPRR 41
|||  |||  |||  |||  |||  |||  |||  |||  |||  |||
Db 147 QRQRPRPRTCRRCRRRRFLHCQGRGLNPDPICRCKPRK 188

RESULT 8
S69207
vascular endothelial growth factor C precursor - human
N:Alternate names: Flt4 ligand DHM
C:Species: Homo sapiens (man)
C:Date: 27-Apr-1996 #sequence_revision 01-Nov-1996 #text_change 08-Oct-1999
C:Accession: S69207; S61795; S71443; S69208; G02659
R:Joukov, V.; Pajusola, K.; Kaipainen, A.; Chillov, D.; Lahtinen, I.; Kukk, E.; Saksel
EMBO J. 15, 1751, 1996
A:Title: Corrigendum: A novel vascular endothelial growth factor, VEGF-C, is a ligand
A:Reference number: S69207; MUID:96203094
A:Accession: S69207
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-419 <JDO>
A:Cross-references: JMBL:X94216; NID:q1177488; PIDN:CAA63907.1; PID:e221096; PID:q118

```

A:Note: the nucleotide sequence was submitted to the EMBL Data Library, December 1995
 A:Note: only a part of the translation is shown
 A:Note: this is a revision to the sequence from reference S61795
 R:Joukov, V.; Pajusola, K.; Kaipainen, A.; Chillov, D.; Lahtinen, I.; Kuk, E.; Sakela, EMO J. 15, 290-298, 1996
 A:Title: A novel vascular endothelial growth factor, VEGF-C, is a ligand for the Flt4 (V
 A:Reference number: S61795; MUID:96176224
 A:Accession: S61795
 A:Status: nucleic acid sequence not shown; not compared with conceptual translation
 A:Molecule type: mRNA
 A:Residues: 70-419 <JOU>
 A:Note: this sequence has been revised in reference S69207
 A:Accession: S71443
 A:Molecule type: Protein
 A:Residues: 104-120 <JOU2>
 R:Lee, J.; Gray, A.; Yuan, J.; Luo, S.M.; Avraham, H.; Wood, W.I.
 Submitted to the EMBL Data Library, December 1995
 A:Description: Vascular endothelial growth factor related protein (VRP): A ligand and sp
 A:Reference number: S69208
 A:Accession: S69208
 A:Molecule type: mRNA
 A:Residues: 1-419 <LEE>
 A:Cross-references: EMBL:U43142; NID:g150988; PID:AA85214.1; PID:g150989
 R:Morris, J.C.
 Submitted to the EMBL Data Library, May 1996
 A:Reference number: H01557
 A:Accession: G02659
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-419 <MOB>
 A:Cross-references: EMBL:U58111; NID:g1373426; PID:AA802909.1; PID:g1373427
 C:Genetics:
 A:Gene: GDB:VEGFC; VNP
 A:Cross-references: GDB:3890883; ONIM:601528
 F:1-12/Domain: signal sequence #status predicted <SIG>
 F:13-107/Domain: propeptide #status predicted <PRO>
 F:103-419/Product: vascular endothelial growth factor C #status experimental <MAT>

Query Match 31.2%; Score 74; DB 2; Length 419;
 Best Local Similarity 39.5%; Pred. No. 0.25;
 Matches 15; Conservative 6; Mismatches 15; Indels 2; Gaps 1;
 Oy 1 CERKHLFVQCKCKCKMT--DSRCKARQLENERCGR 36
 Db 304 GPRKELDRNSQCVCKKLPSPQGANREDETCQC 341

RESULT 9
 S08167
 Balbiant ring 3 protein - midge (Chironomus tentans)
 C:Species: Chironomus tentans
 C:Date: 30-Sep-1991 #sequence_revision 30-Sep-1991 #text_change 17-Mar-2000
 C:Accession: S08167
 R:Paulsson, G.; Landahl, U.; Gall, J.; Ericsson, C.; Wieslander, L.
 J. Mol. Biol. 211, 331-349, 1990
 A:Title: The balbiant ring 3 gene in Chironomus tentans has a diverged repetitive struct
 A:Reference number: S08167; MUID:90172404
 A:Accession: S08167
 A:Status: not compared with conceptual translation
 A:Molecule type: DNA
 A:Residues: 1-1700 <PAD>
 A:Cross-references: GB:X52263; NID:g7057; PID:g7058
 C:Genetics:
 A:Gene: BR3
 A:Map position: 4
 C:Superfamily: unassigned Balbiant ring proteins

Query Match 30.0%; Score 71; DB 2; Length 1700;
 Best Local Similarity 38.5%; Pred. No. 1.4;
 Matches 15; Conservative 5; Mismatches 11; Indels 8; Gaps 2;

Oy 1 CERKHLFVQCKCKCKNTDSRCKARQLENERCGRCDK 39
 Db 126 CER-----SCACVCPNAD-KCTAPQVKNKDTCCGCP 156

RESULT 10
 J00542
 185k secretory protein - midge (Chironomus tentans) (fragment)
 N:Alternate names: balbiant ring 3 protein
 C:Species: Chironomus tentans
 C:Date: 31-Dec-1991 #sequence_revision 31-Dec-1991 #text_change 17-Mar-2000
 C:Accession: J00542
 R:Dignam, S.S.; Case, S.T.
 Gene 88, 133-140, 1990
 A:Title: Balbiant ring 3 in Chironomus tentans encodes a 185-kDa secretory protein wh
 A:Reference number: J00542; MUID:90269600
 A:Accession: J00542
 A:Molecule type: mRNA
 A:Residues: 1-160 <DIG>
 A:Cross-references: GB:M24160
 A:Experimental source: salivary gland
 C:Superfamily: unassigned Balbiant ring proteins

Query Match 29.5%; Score 70; DB 2; Length 160;
 Best Local Similarity 35.5%; Pred. No. 0.35;
 Matches 11; Conservative 5; Mismatches 15; Indels 0; Gaps 0;
 Oy 9 VQTKCSCKNWDSCRARQLENERCGRCDK 39
 Db 123 INVCACGCGIDKRPSCPKQIYNKMTCDCECP 153

RESULT 11
 A55011
 metallothionein-like protein YOR031w - yeast (Saccharomyces cerevisiae)
 N:Alternate names: protein O2675
 C:Species: Saccharomyces cerevisiae
 C:Date: 11-Nov-1994 #sequence_revision 11-Nov-1994 #text_change 12-Dec-1997
 C:Accession: A55011; S66897
 R:Calotta, V.C.; Howard, W.R.; Liu, X.F.
 J. Biol. Chem. 269, 25295-25302, 1994
 A:Title: CRS encodes a metallothionein-like protein in Saccharomyces cerevisiae.
 A:Reference number: A55011; MUID:95014318
 A:Accession: A55011
 A:Molecule type: DNA
 A:Residues: 1-69 <CU>
 A:Cross-references: GB:I29056; NID:g499891; PID:g499892
 R:de Haan, M.; Grivell, L.A.; Maarse, A.C.
 Submitted to the Protein Sequence Database, July 1996
 A:Reference number: S66877
 A:Accession: S66897
 A:Molecule type: DNA
 A:Residues: 1-8 <DEH>
 A:Cross-references: EMBL:Z74939; MIPS:YOR031w
 A:Experimental source: strain S288C
 A:Note: in strain S288C YOR031w is a pseudogene with an inframe stopcodon
 C:Genetics:
 A:Gene: CRS
 A:Map position: 15R
 A:Note: YOR031w
 C:Function:
 A:Description: involved in copper homeostasis and detoxification

Query Match 25.7%; Score 61; DB 2; Length 69;
 Best Local Similarity 31.6%; Pred. No. 2;
 Matches 12; Conservative 5; Mismatches 9; Indels 12; Gaps 2;
 Oy 10 QTKC-----SCKNTDSRCKARQLENERCGRCDK 40
 Db 31 EKCKDHSTGSPQCKSCGCKC-----ETTCCKSK 63

RESULT 12
A33787
vascular endothelial growth factor (version 1) - bovine
C:Species: Bos primigenius taurus (cattle)
C:Date: 16-Mar-1990 #sequence_revision 16-Mar-1990 #text_change 05-Nov-1999
C:Accession: A33787
R:Rischner, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crisp
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth
A:Reference number: A33787; MUID:90121225
A:Accession: A33787
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-120 <RTS>
A:Cross-references: GB:M33750; NID:g163810; PIDN:AAA30805.1; PID:g163811
C:Keywords: alternative splicing

Query Match 25.7%; Score 61; DB 2; Length 120;
Best Local Similarity 44.1%; Pred. No. 2.9;
Matches 15; Conservative 4; Mismatches 7; Indels 8; Gaps 2;
QY 8 FVOTCKSCCKNTDSRCKAROLENERTCRCRDKPRR 41
| | | | | : | | | | | : | | | | |
| | | | | : | | | | | : | | | | |
Db 95 FLOHKKCECR--PKDKRKRQE-----KCDKPRR 120

RESULT 13
S57956
ovine vascular endothelial growth factor - sheep
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C:Date: 13-Jan-1996 #sequence_revision 01-Mar-1996 #text_change 05-Nov-1999
C:Accession: S57956
R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.
submitted to the EMBL Data Library, July 1995
A:Reference number: S57956
A:Accession: S57956
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-146 <RED>
A:Cross-references: EMBL:X89506; NID:g899350; PIDN:CAA61677.1; PID:g899351

Query Match 25.7%; Score 61; DB 2; Length 146;
Best Local Similarity 44.1%; Pred. No. 3.3;
Matches 15; Conservative 4; Mismatches 7; Indels 8; Gaps 2;
QY 8 FVOTCKSCCKNTDSRCKAROLENERTCRCRDKPRR 41
| | | | | : | | | | | : | | | | |
| | | | | : | | | | | : | | | | |
Db 121 FLOHKKCECR--PKDKRKRQE-----KCDKPRR 146

RESULT 14
A35281
integumentary mucin B.1 - African clawed frog (fragment)
C:Species: Xenopus laevis (African clawed frog)
C:Date: 17-Aug-1990 #sequence_revision 06-Nov-1992 #text_change 09-Sep-1997
C:Accession: A35281
R:Probst, J.C.; Gertzen, E.M.; Hoffmann, W.
Biochemistry 29, 6240-6244, 1990
A:Title: An integumentary mucin (FM-B.1) from Xenopus laevis homologous with von Wille
A:Reference number: A35281; MUID:91002513
A:Accession: A35281
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-398 <PRO>
A:Cross-references: GB:J02910; NID:g214145; PID:g214146

Query Match 25.5%; Score 60.5; DB 2; Length 398;
Best Local Similarity 34.2%; Pred. No. 7.7;
Matches 13; Conservative 7; Mismatches 15; Indels 3; Gaps 2;

QY 6 HLEFVOTCK-CSCKNTD--SRCKAROLENERTCRCRDKPR 40
| | | | | : | | | | | : | | | | |
| | | | | : | | | | | : | | | | |
Db 183 HMQTGCDCVCTCNGTSKRTQCAPRQCKEIKCKSDERR 220

RESULT 15
T42215
zonadhesin - mouse
N:Alternate names: sperm-specific membrane protein
C:Species: Mus musculus (house mouse)
C:Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 03-Dec-1999
C:Accession: T42215
R:Gao, Z.; Garbers, D.L.
J. Biol. Chem. 273, 3415-3421, 1998
A:Title: Species diversity in the structure of zonadhesin, a sperm-specific membrane
A:Reference number: Z22080; MUID:98123114
A:Accession: T42215
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-5376 <GAO>
A:Cross-references: EMBL:U97068; NID:g3327420; PID:g3327421; PIDN:AAC26680.1
C:Genetics:
A:Gene: Zan
A:Map position: 5
C:Function:
A:Description: functions in multiple cell adhesion processes
A:Note: found exclusively on the apical region of the sperm head
C:Keywords: cell adhesion

Query Match 25.3%; Score 60; DB 2; Length 5376;
Best Local Similarity 44.0%; Pred. No. 55;
Matches 11; Conservative 2; Mismatches 12; Indels 0; Gaps 0;
QY 11 TCKSCCKNTDSRCKAROLENERTC 35
| | | | | : | | | | | : | | | | |
| | | | | : | | | | | : | | | | |
Db 4756 TCLPSCSNPD3RCGCTSHKAPSTCR 4780

Search completed: November 9, 2000, 15:32:00
Job time: 181 sec

Thu Nov 9 15:49:52 2000

us-09-266-543-6.rpr

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:40:20 ; Search time 41.83 Seconds

(without alignments)
31.314 Million cell updates/sec

Title: US-09-266-543-6

Perfect score: 237
Sequence: 1 CERKHLFVOTCKSCCKNTD.....RCKAROLENERTCRDCKPRR 41

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues

Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Maximum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_39:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	206	86.9	190	1	VEGF_BOVIN
2	206	86.9	190	1	VEGF_PIG
3	206	86.9	190	1	VEGF_RAT
4	206	86.9	214	1	VEGF_MOUSE
5	206	86.9	215	1	VEGF_HUMAN
6	203	85.7	164	1	VEGF_GAVPO
7	190	80.2	216	1	VEGF_CHICK
8	85	35.9	188	1	VEGB_MOUSE
9	80	33.8	188	1	VEGB_HUMAN
10	74	31.2	419	1	VEGC_HUMAN
11	71	30.0	1700	1	BAR3_CHITE
12	69	29.1	415	1	VEGC_MOUSE
13	61	25.7	69	1	CRS5_YEAST
14	61	25.7	146	1	VEGF_SHEEP
15	60.5	25.5	398	1	MUB1_XENLA
16	59.5	25.1	593	1	FAI2_BOVIN
17	59	24.9	2703	1	NOTC_DROME
18	56	23.6	118	1	PA2A_MICNT
19	56	23.6	118	1	PA2B_MICNT
20	56	23.6	372	1	LEM1_MOUSE
21	55.5	23.4	603	1	FAI2_GAVPO
22	55	23.2	62	1	MT2_CABEL
23	54.5	23.0	57	1	MT2_SCYSE
24	54.5	23.0	58	1	MT_PORPO
25	54.5	23.0	74	1	MT1_CABEL
26	54	22.8	139	1	TSHB_SALSA
27	54	22.8	147	1	TSHB_ONCMY
28	53.5	22.6	402	1	LHX5_XENLA
29	53.5	22.6	1106	1	STC_DROME
30	53.5	22.6	1285	1	SLIT1_ENTHI
31	53	22.4	170	1	Y93H_HAEIN
32	53	22.4	225	1	PDGB_RAT
33	53	22.4	241	1	PDGB_MOUSE

ALIGNMENTS

RESULT	1	STANDARD	PRT	190 AA
VEGF_BOVIN				
1				
AC	P15691			
DT	01-APR-1990 (Rel. 14, Created)			
DT	01-APR-1990 (Rel. 14, Last sequence update)			
DT	01-OCT-1996 (Rel. 34, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).			
GN	VEGF.			
OS	Bos taurus (Bovine).			
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;			
OC	Bovidae; Bovinae; Bos.			
RN	[1]			
RP	SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.			
RA	MEDLINE: 90069608.			
RX	Leung D.W., Cachanes G., Kuang W.-J., Goeddel D.V., Ferrara N.;			
RT	"Vascular endothelial growth factor is a secreted angiogenic mitogen."			
RL	Science 246:1306-1309(1989).			
RN	[2]			
RP	SEQUENCE OF 27-190 FROM N.A.			
RA	MEDLINE: 90121225.			
RT	Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,			
RL	Lau K., Crisp T., Fiddes J.C., Abraham J.A.;			
RX	"Vascular endothelial growth factor: a new member of the platelet-derived growth factor gene family."			
RL	Biochem. Biophys. Res. Commun. 165:1198-1206(1989).			
RN	[3]			
RP	SEQUENCE OF 27-31.			
RA	MEDLINE: 89286596.			
RT	Ferrara N., Henzel W.J.;			
RL	"Pituitary follicular cells secrete a novel heparin-binding growth factor specific for vascular endothelial cells."			
RX	Biochem. Biophys. Res. Commun. 161:851-858(1989).			
RL	"FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS. AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY."			
CC	SUBUNIT: HOMODIMER, DISULFIDE-LINKED.			
CC	-1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).			
CC	-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.			
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see http://www.isb-sib.ch/announce/ or send an email to license@sib-sib.ch).			
CC	EMBL: M32976; AAA30502.1; -			
DR	EMBL: M31836; AAA30804.1; -			
DR	EMBL: M33750; AAA30805.1; -			

34 53 22.4 372 1 LEM1_RAT
35 52.5 22.2 683 1 PPOC_MATZE
36 52 21.9 146 1 PA21_GAVPO
37 52 21.9 357 1 MTLD_ENTFA
38 52 21.9 405 1 LHX1_BRARE
39 52 21.9 1231 1 KIF4_MOUSE
40 51.5 21.7 134 1 TSHB_CHICK
41 51.5 21.7 399 1 LHX5_BRARE
42 51.5 21.7 403 1 LHX1_XENLA
43 51.5 21.7 615 1 FAI2_HUMAN
44 51.5 21.7 3133 1 HMCT_BOWMO
45 51 21.5 171 1 IR10_HCWA

P30836 rattus norv
P16024 zea mays (m
P43434 cavia porce
P27543 enterococcu
O90476 brachydanio
P33174 mus musculu
O57340 gallus galli
P52889 brachydanio
P28674 xenopus lae
P00748 homo sapien
P98092 bombyx mori
P16808 human cytom

```

DR PIR: A33255; A33255.
DR PIR: A33787; A33787.
DR PIR: B40080; B40080.
DR HSSP: P15692; 2VGH.
DR INTERPRO: IPRO00072; -.
DR PFAM: PF00341; PDGF_1.
DR PROSITE: PS00249; PDGF_1.
DR PROSITE: PS0278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT SIGNAL 1 26
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT VARSPPLIC 139 183 MISSING (IN ISOFORM BETA).
FT VARSPPLIC 184 184 R -> K (IN ISOFORM BETA).
SQ SEQUENCE 190 AA; 22310 MW; EDH903E46E24789 CRC64;

```

Query Match 86.9%; Score 206; DB 1; Length 190;
 Best Local Similarity 90.9%; Pred. No. 1.4e-17;
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

```

OY 2 ERRKHLFV---QTCCKSCKNTDSRCKAROLE-NERTCRDCKPRR 41
DB 147 ERRKHLFVODPQTCCKSCKNTDSRCKAROLELNERTCRDCKPRR 190

```

RESULT 2

VEGF_PIG STANDARD; PRT; 190 AA.

```

AC P49151;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RX MEDLINE: 95143284.
RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;
RT "Nucleotide sequence and expression of the porcine vascular
RT endothelial growth factor."
RL Biochim. Biophys. Acta 1260:235-238(1995).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY (BY SIMILARITY).
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).

```

```

CC EMBL: X81380; CAAS7143.1; -.
CC HSSP: P15692; 2VGH.
CC DR INTERPRO: IPRO00072; -.
CC PFAM: PF00341; PDGF_1.

```

```

DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS0278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1 26
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 190 AA; 22368 MW; 04D40B8D7913047F CRC64;

```

Query Match 86.9%; Score 206; DB 1; Length 190;
 Best Local Similarity 90.9%; Pred. No. 1.4e-17;
 Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

```

OY 2 ERRKHLFV---QTCCKSCKNTDSRCKAROLE-NERTCRDCKPRR 41
DB 147 ERRKHLFVODPQTCCKSCKNTDSRCKAROLELNERTCRDCKPRR 190

```

RESULT 3

VEGF_RAT STANDARD; PRT; 190 AA.

```

AC P16612;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-190.
RX MEDLINE: 90207249.
RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,
RA Palisi T.M., Hope D.A., Thomas K.A.;
RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen
RT that is homologous to platelet-derived growth factor."
RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- TISSUE SPECIFICITY: EXPRESSED IN THE PITUITARY, IN BRAIN, IN
CC PARTICULARLY IN SUPRAOPTIC AND PARAVENTRICULAR NUCLEI AND THE
CC CHOROID PLEXUS. ALSO FOUND ABUNDANTLY IN THE CORPUS LUTEUM OF
CC THE OVARY AND IN KIDNEY GLOMERULI.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).

```

```

CC EMBL: M32167; AAA41211.1; -.
CC PIR: A35987; A35987.
CC HSSP: P15692; 2VGH.
CC DR INTERPRO: IPRO00072; -.
CC PFAM: PF00341; PDGF_1.
CC DR PROSITE: PS00249; PDGF_1; 1.
CC DR PROSITE: PS0278; PDGF_2; 1.
CC KW Mitogen; Growth factor; Glycoprotein; Signal.

```

```

FT SIGNAL 1 26
FT CHAIN 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
SO SEQUENCE 190 AA; 22396 MW; 589374010441F377 CRC64;

Query Match 86.9%; Score 206; DB 1; Length 190;
Best Local Similarity 90.9%; Pred. No. 1.4e-17;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

Oy 2 ERKHLFV---QTKCSCKNTDSRCKARQLE-NERTCGRDPRR 41
Db 147 ERKHLFVQDPQTKCSCKNTDSRCKARQLELNERTCGRDPRR 190

RESULT 4
VEGF_MOUSE STANDARD; PRT; 214 AA.
ID VEGF_MOUSE
AC 000731;
DT 01-APR-1993 (Rel. 25, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 92274860.
RA Breier G., Albrecht U., Sterrer S., Risau W.;
RT "Expression of vascular endothelial growth factor during embryonic angiogenesis and endothelial cell differentiation.";
RL Development 114:521-532(1992).
RN [2]
RP SEQUENCE FROM N.A. (VEGF-1).
RX MEDLINE; 92355593.
RA Claffey K.P., Milkison W.O., Spiegelman B.M.;
RT "Vascular endothelial growth factor. Regulation by cell differentiation and activated second messenger pathways.";
RL J. Biol. Chem. 267:16317-16322(1992).
RN [3]
RP SEQUENCE OF 1-3 FROM N.A.
RX MEDLINE; 96216498.
RA Shima D.T., Kuroki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.;
RT "The mouse gene for vascular endothelial growth factor. Genomic structure, definition of the transcriptional unit, and characterization of transcriptional and post-transcriptional regulatory sequences.";
RL J. Biol. Chem. 271:3877-3883(1996).
RN [4]
RP FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.
RN [5]
RP SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
RN [6]
RP SUBCELLULAR LOCATION: VEGF-1 AND VEGF-2 ARE SECRETED WHILE VEGF-3 REMAINS CELL-SURFACE ASSOCIATED UNLESS RELEASED BY HEPARIN.
RN [7]
RP ALTERNATIVE PRODUCTS: THREE FORMS (VEGF-1, VEGF-2 AND VEGF-3) ARE PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME GENE. THE LONGEST FORM (VEGF-3, SHOWN HERE) CONTAINS A BASIC INSERT LINKED TO CELL-ASSOCIATION/HEPARIN-BINDING.
RN [8]
RP TISSUE SPECIFICITY: IN DEVELOPING EMBRYOS, EXPRESSED MAINLY IN THE CHOROID PLEXUS, PARAVENTRICULAR NEUROEPITHELIUM, PLACENTA AND KIDNEY GLOMERULI. ALSO FOUND IN BRONCHIAL EPITHELIUM, ADRENAL GLAND AND IN SEMINIFEROUS TUBULES OF TESTIS. HIGH EXPRESSION OF VEGF CONTINUES IN KIDNEY GLOMERULI AND CHOROID PLEXUS IN ADULTS.
RN [9]
RP SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.

```

RL Science 246:1309-1312(1989).
 RN [3]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 91268072.
 RA Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,
 RA Flóides J.C., Abraham J.A.;
 RT "The human gene for vascular endothelial growth factor. Multiple
 RT protein forms are encoded through alternative exon splicing.";
 RL J. Biol. Chem. 266:11947-11954(1991).
 RN [4]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 92231879.
 RA Weindel K., Marne D., Welch H.A.;
 RT "AIDS-associated Kaposi's sarcoma cells in culture express vascular
 RT endothelial growth factor.";
 RL Biochem. Biophys. Res. Commun. 183:1167-1174(1992).
 RN [5]
 RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.
 RX MEDLINE: 90062112.
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R.,
 RA Siegel N., Haymore B.D., Letmugher R., Feder J.;
 RT "Human vascular permeability factor. Isolation from U937 cells.";
 RL J. Biol. Chem. 264:20017-20024(1989).
 RN [6]
 RP SEQUENCE OF 27-41.
 RX MEDLINE: 93145946.
 RA Fleblich B.L., Jaeger B., Schoellmann C., Weindel K., Wiltling J.,
 RA Kochs G., Marne D., Hug H., Welch H.A.;
 RT "Synthesis and assembly of functionally active human vascular
 RT endothelial growth factor homodimers in insect cells.";
 RL Eur. J. Biochem. 211:19-26(1993).
 RN [7]
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.
 RX MEDLINE: 97352774.
 RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,
 RA de Vos A.M.;
 RT "Vascular endothelial growth factor: crystal structure and functional
 RT mapping of the kinase domain receptor binding site.";
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).
 RN [8]
 RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.
 RX MEDLINE: 98035455.
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;
 RT "The crystal structure of vascular endothelial growth factor (VEGF)
 RT refined to 1.93-A resolution: multiple copy flexibility and receptor
 RT binding.";
 RL Structure 5:1325-1338(1997).
 RN [9]
 RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.
 RX MEDLINE: 99119204.
 RA Wismann C., Christinger H.W., Cochran A.G., Cunningham B.C.,
 RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;
 RT "Crystal structure of the complex between VEGF and a receptor-blocking
 RT peptide.";
 RL Biochemistry 37:17765-17772(1998).
 RN [10]
 RP STRUCTURE BY NMR OF 34-135.
 RX MEDLINE: 97477915.
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
 RA Starovasnik M.A.;
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the
 RT receptor-binding domain of vascular endothelial growth factor.";
 RL Protein Sci. 6:2250-2260(1997).
 RN [11]
 RP STRUCTURE BY NMR OF 137-215.
 RX MEDLINE: 98298440.
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
 RA Starovasnik M.A.;
 RT "Solution structure of the heparin-binding domain of vascular
 RT endothelial growth factor.";
 RL Structure 6:637-648(1998).
 CC -I- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR

	CC	PERMEABILITY.
	CC	-1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
	CC	-1- SUPRACELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SMILIARTY).
	CC	-1- ALTERNATIVE PRODUCTS: FOUR FORMS OF VEGF ARE PRODUCED BY ALTERNATIVE SPLICING OF THE SAME GENE (VEGF-121, VEGF-165, VEGF-189 AND VEGF-215).
	CC	-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
	CC	-----
	CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swis's Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or_send_an_email_to_license@lsb.sib.ch).
	CC	-----
DR	EMBL; M32977;	AAA35789.1; -
DR	EMBL; M27281;	AAA36807.1; -
DR	EMBL; M63978;	AAA36804.1; -
DR	EMBL; M63971;	AAA36804.1; JOINED.
DR	EMBL; M63972;	AAA36804.1; JOINED.
DR	EMBL; M63973;	AAA36804.1; JOINED.
DR	EMBL; M63974;	AAA36804.1; JOINED.
DR	EMBL; M63975;	AAA36804.1; JOINED.
DR	EMBL; M63976;	AAA36804.1; JOINED.
DR	EMBL; M63977;	AAA36804.1; JOINED.
DR	EMBL; X62568;	CAA4447.1; -
DR	PIR; A34492;	A34492.
DR	PIR; A40079;	A40079.
DR	PIR; A40080;	A40080.
DR	PIR; A40454;	A40454.
DR	PIR; B40454;	B40454.
DR	PIR; C40454;	C40454.
DR	PIR; J01463;	J01463.
DR	PIR; J01464;	J01464.
DR	PIR; S17348;	S17348.
DR	PDB; 1VGH;	08-APR-98.
DR	PDB; 2VGH;	08-APR-98.
DR	PDB; 1VPF;	08-APR-98.
DR	PDB; 2VPF;	23-JUL-98.
DR	PDB; 1VPP;	23-FEB-99.
DR	MIM;	192240; -
DR	INTERPRO:	IIPRO00072; -
DR	PFAM:	PF00341; PDGF_1.
DR	PROSITE:	PS00248; PDGF_1; 1.
DR	PROSITE:	PS0276; PDGF_2; 1.
KW	Mlrogen; Growth factor; Glycoprotein; Alternative splicing; Signal; 3d-structure.	
RN	3d-structure.	
FT	SIGNAL	1..26
FT	CHAIN	27..215
FT	DISELFD	52..94
FT	DISELFD	83..128
FT	DISELFD	87..130
FT	DISELFD	77..77
FT	DISELFD	86..86
FT	CABOARD	101..101
FT	VASPLIC	141..141
FT	VASPLIC	142..165
FT	VASPLIC	142..209
SO	SEQUENCE	215 AA; 25173 MW; 7B9759AD5871FF33 CRC64;
QZ	Query Match	
DB	Similarity	86.9%; Score 206; DB 1; Length 215;
	Matches	Conservative 40; Indels 4; Gaps 2;
172	ERRKLFV---OTCKSCKNTRDKAOLE-NETCQRDRRR 172 ERRKLFVODEOTCKSCKNTRDKAKOLENETCQRDRRR	

```

RESULT 6
VEGF_CAVPO STANDARD; PRT; 164 AA.
AC P26617;
DT 01-AUG-1992 (Rel. 23, Created)
DT 01-AUG-1992 (Rel. 23, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) (VASCULAR PERMEABILITY
  FACTOR) (VEGF).
GN VEGF.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
  Mammalia; Eutheria; Rodentia; Hystricognathi; Cavidae; Cavia.
  [1]
RN SEQUENCE FROM N.A.
RA Berse B.;
  Submitted (XXX-1992) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
  CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
  PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
  TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
  SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
  between the Swiss Institute of Bioinformatics and the EMBL outstation -
  the European Bioinformatics Institute. There are no restrictions on its
  use by non-profit institutions as long as its content is in no way
  modified and this statement is not removed. Usage by and for commercial
  entities requires a license agreement (See http://www.isb-sib.ch/announce/
  or send an email to license@isb-sib.ch).
  -----
CC EMBL: M84230; AAA37057.1; -
CC DR HSSP: P15692; 2VGH.
CC DR INTERPRO: IPR000072; -
CC DR PFAM: PFO0341; PDGF_1;
CC DR PROSITE: PS00249; PDGF_1; 1.
CC DR PROSITE: PS02278; PDGF_2; 1.
CC KM Mitogen; Growth factor; Glycoprotein.
CC FT DISULFID 25 67 BY SIMILARITY.
CC FT DISULFID 56 101 BY SIMILARITY.
CC FT DISULFID 60 103 BY SIMILARITY.
CC FT DISULFID 50 50 INTERCHAIN (BY SIMILARITY).
CC FT DISULFID 59 59 INTERCHAIN (BY SIMILARITY).
CC FT CARBOHYD 74 74 N-LINKED (GLCNAC. . .) (POTENTIAL).
CC SQ SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5DCA4 CRC64;

Query Match 85.7%; Score 203; DB 1; Length 164;
Best Local Similarity 88.6%; Pred. No. 2, 8e-17;
Matches 39; Conservative 1; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV---OTCKSCSKNTDSRCAROLE-NERTCRCKPRR 41
  ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
DB 121 ERRKHLFVDPOTCKSCSKNTDSRCAROLELNERTCRCKPRR 164

RESULT 7
VEGF_CHICK STANDARD; PRT; 216 AA.
AC P52582; 091420;
DT 01-OCT-1996 (Rel. 34, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-DEC-1998 (Rel. 37, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
  PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Gallus gallus (Chicken), and
  Coturnix coturnix japonica (Japanese quail).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

```

```

OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
  OC Gallus.
  [1]
RN SEQUENCE FROM N.A.
RP SPECIES-CHICKEN; TISSUE-HEART;
RC Takahashi T.;
RL Submitted (FEB-1998) to the EMBL/GenBank/DBJ databases.
  [2]
RN SEQUENCE FROM N.A.
RP SPECIES-C.C.JAPONICA; TISSUE-EMBRYO;
RC MEDLINE: 96005007.
RA Flame I., von Reutern M., Drexler H.C., Syed-Ali S., Risau W.;
  "Overexpression of vascular endothelial growth factor in the avian
  embryo induces hypervascularization and increased vascular
  permeability without alterations of embryonic pattern formation.";
  Dev. Biol. 171:399-414(1995).
  [3]
RN SEQUENCE OF 60-187 FROM N.A.
RP SPECIES-C.C.JAPONICA;
RC MEDLINE: 95301109.
RA Flame I., Breier G., Risau W.;
  "Vascular endothelial growth factor (VEGF) and VEGF receptor 2
  (flk-1) are expressed during vasculogenesis and vascular
  differentiation in the quail embryo.";
  Dev. Biol. 169:699-712(1995).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
  CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
  PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC -1- ALTERNATIVE PRODUCTS: THREE ISOFORMS (VEGF-190, VEGF-146 AND VEGF-
  166) ARE PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME
  GENE. THE LONGER FORM CONTAINS A BASIC INSERT WHICH ACTS AS A CELL
  RETENTION SIGNAL.
CC -1- TISSUE SPECIFICITY: ABUNDANTLY AND EQUALLY EXPRESSED IN HEART AND
  LIVER. IN KIDNEY GLOMERULI, BRAIN AND YOLK SAC, VEGF-166 FORM IS
  5- TO 10- TIMES MORE ABUNDANT THAN THE VEGF-190 FORM.
CC -1- DEVELOPMENTAL STAGE: THE VEGF-166 FORM IS EXPRESSED EARLY AT DAY 1
  AND IS UPGRADED DURING GASTRULATION. EXPRESSION OF THE VEGF-190
  FORM IS DETECTABLE ONLY FROM DAY 2.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
  between the Swiss Institute of Bioinformatics and the EMBL outstation -
  the European Bioinformatics Institute. There are no restrictions on its
  use by non-profit institutions as long as its content is in no way
  modified and this statement is not removed. Usage by and for commercial
  entities requires a license agreement (See http://www.isb-sib.ch/announce/
  or send an email to license@isb-sib.ch).
  -----
CC EMBL: AB011078; BAA24925.1; -
CC DR EMBL: S79680; AAB35371.1; -
CC DR HSSP: P15692; 2VGH.
CC DR INTERPRO: IPR000072; -
CC DR PFAM: PFO0341; PDGF_1;
CC DR PROSITE: PS00249; PDGF_1; 1.
CC DR PROSITE: PS02278; PDGF_2; 1.
CC KM Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
CC FT CHAIN 1 26 BY SIMILARITY.
CC FT STGNAL 1 26 VASCULAR ENDOTHELIAL GROWTH FACTOR.
CC FT DISULFID 27 216 BY SIMILARITY.
CC FT DISULFID 83 128 BY SIMILARITY.
CC FT DISULFID 87 130 BY SIMILARITY.
CC FT DISULFID 77 77 INTERCHAIN (BY SIMILARITY).
CC FT DISULFID 86 86 INTERCHAIN (BY SIMILARITY).
CC FT CARBOHYD 101 101 N-LINKED (GLCNAC. . .) (POTENTIAL).
CC FT VARSPLIC 142 142 K -> N (IN ISOFORM VEGF-166).
CC FT VARSPLIC 143 142 MISSING (IN ISOFORM VEGF-166).
CC FT VARSPLIC 144 166 MISSING (IN ISOFORM VEGF-146).
CC FT VARSPLIC 167 166 F -> L (IN ISOFORM VEGF-146).
CC FT VARSPLIC 167 210 MISSING (IN ISOFORM VEGF-146).
CC SQ SEQUENCE 216 AA; 25203 MW; 82E669C2F6CC6A7 CRC64;

Query Match 80.2%; Score 190; DB 1; Length 216;
Best Local Similarity 84.1%; Pred. No. 1, 1e-15;

```

Matches 37; Conservative 2; Mismatches 1; Indels 4; Gaps 2;
 QY 2 ERRKHLFV---OTCKSCSKNTD-SRCKAROLE-NERTCRCDKPRR 41
 Db 173 ERRKHLFVODPOTCKSCSKFTDSCKRSROLELNERTCRCEKPRR 216

RESULT 8
 VEGF_MOUSE STANDARD; PRT; 188 AA.
 ID P49765;
 AC 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 15-DEC-1998 (Rel. 37, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR B PRECURSOR (VEGF-B) (VASCULAR
 DE ENDOTHELIAL GROWTH FACTOR RELATED PROTEIN) (VRF).
 GN VEGFB OR VRF.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=HEART;
 RX MEDLINE: 96197355.
 RA Olofsson B., Pajusola K., Kaipainen A., von Euler G., Jonkov V.,
 RA Saksela O., Orpana A., Pettersson R.F., Alltalo K., Eriksson U.,
 RT "Vascular endothelial growth factor B, a novel growth factor for
 RT endothelial cells.";
 RL Proc. Natl. Acad. Sci. U.S.A. 93:2576-2581(1996).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC TISSUE=BRAIN;
 RX MEDLINE: 96183052.
 RA Townsend S., Lagercrantz J., Grimmond S., Sillis G.,
 RA Nordenskjold M., Weber G., Hayward N.K.;
 RT "Characterization of the murine VEGF-related factor gene.";
 RT Biochem. Biophys. Res. Commun. 220:922-928(1996).
 CC -1- FUNCTION: GROWTH FACTOR FOR ENDOTHELIAL CELLS. BINDS HEPARIN.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED. CAN ALSO FORM HETERODIMER
 CC WITH VEGF.
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN.
 CC -1- TISSUE SPECIFICITY: ABUNDANTLY EXPRESSED IN HEART, BRAIN, KIDNEY
 CC AND SKELETAL MUSCLE.
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC
 DR EMBL: U48800; AAC06273.1; -;
 DR EMBL: U43837; AAC52553.1; -;
 DR HSSP: P15692; 2VGH.
 DR MGD; MG1:106199; VEGFB.
 DR INTERPRO: IPR000072; -;
 DR PFAM: PF00341; PDGF_1.
 DR PROSITE: PS00249; PDGF_1; 1.
 DR PROSITE: PS50278; PDGF_2; 1.
 KW Mitogen; Growth factor; Signal; Heparin-binding.
 FT SIGNAL 1 21 POTENTIAL.
 FT CHAIN 22 188 VASCULAR ENDOTHELIAL GROWTH FACTOR B.
 FT SEQUENCE 188 AA; 21442 MW; D52A055FB995E9CA CRC64;

Query Match 35.9%; Score 85; DB 1; Length 188;
 Best Local Similarity 42.9%; Pred. No. 0.0017;
 Matches 18; Conservative 7; Mismatches 15; Indels 2; Gaps 2;

OY 2 ERRKHLFVOTCKSCSKNTD-SRCKAROLE-NERTCRCDKPRR 41

Db 147 QNRQDPPTCRCKRRRFLHCGGGLNPDTCRCRCKPRR 188

RESULT 9
 VEGF_HUMAN STANDARD; PRT; 188 AA.
 ID P49765;
 AC 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 15-DEC-1998 (Rel. 37, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR B PRECURSOR (VEGF-B) (VEGF RELATED
 DE FACTOR).
 GN VEGFB OR VRF.
 OS Homo sapiens (Human)
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=HEART;
 RX MEDLINE: 96197355.
 RA Olofsson B., Pajusola K., Kaipainen A., von Euler G., Jonkov V.,
 RA Saksela O., Orpana A., Pettersson R.F., Alltalo K., Eriksson U.,
 RT "Vascular endothelial growth factor B, a novel growth factor for
 RT endothelial cells.";
 RL Proc. Natl. Acad. Sci. U.S.A. 93:2576-2581(1996).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC MEDLINE: 97077124.
 RA Grimmond S., Lagercrantz J., Drinkwater C., Sillis G., Townsend S.,
 RA Pollock P., Gotley D., Carson E., Rakar S., Nordenskjold M., Ward L.,
 RA Hayward N., Weber G.;
 RT "Cloning and characterization of a novel human gene related to
 RT vascular endothelial growth factor.";
 RL Genome Res. 6:124-131(1996).
 CC -1- FUNCTION: GROWTH FACTOR FOR ENDOTHELIAL CELLS. BINDS HEPARIN.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED. CAN ALSO FORM HETERODIMER
 CC WITH VEGF.
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN.
 CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALL TISSUES EXCEPT LIVER.
 CC -1- HIGHEST LEVELS FOUND IN HEART, SKELETAL MUSCLE AND PANCREAS.
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC
 DR EMBL: U48801; A1806274.1; -;
 DR EMBL: U43368; A1809463.1; -;
 DR HSSP: P15692; 1VPF.
 DR MIM: 601398; -;
 DR INTERPRO: IPR000072; -;
 DR PFAM: PF00341; PDGF_1.
 DR PROSITE: PS00249; PDGF_1; 1.
 DR PROSITE: PS50278; PDGF_2; 1.
 KW Mitogen; Growth factor; Signal; Heparin-binding.
 FT SIGNAL 1 21 POTENTIAL.
 FT CHAIN 22 188 VASCULAR ENDOTHELIAL GROWTH FACTOR B.
 FT SEQUENCE 188 AA; 21261 MW; F04654D5A3727194 CRC64;

Query Match 33.8%; Score 80; DB 1; Length 188;
 Best Local Similarity 50.0%; Pred. No. 0.0065;
 Matches 17; Conservative 4; Mismatches 11; Indels 2; Gaps 2;

OY 10 OTCKSCSKNTD-SRCKAROLE-NERTCRCDKPRR 41
 Db 155 RTCRRCRRRSFLRCGGGLNPDTCRCRCKLR 188

```

RESULT 10
VEGC_HUMAN STANDARD; PRT; 419 AA.
ID VEGC_HUMAN
AC P49767;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 30-MAY-2000 (Rel. 39, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR (VEGF-C) (VASCULAR
ENDOTHELIAL GROWTH FACTOR RELATED PROTEIN) (VRP) (FLT4 LIGAND) (FLT4-
L).
GN VEGFC.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 103-120.
RX MEDLINE: 96178224.
RA Joukov V., Pajusola K., Kaipainen A., Chllov D., Lahtinen I., Kuk E.,
Saksela O., Kaikkinen N., Alltalo K.;
RT "A novel vascular endothelial growth factor, VEGF-C, is a ligand for
the Flt4 (VEGFR-3) and KDR (VEGFR-2) receptor tyrosine kinases.";
RL EMBO J. 15:290-298(1996).
RN [2]
RP ERRATUM.
RX MEDLINE: 96203094.
RA Joukov V., Pajusola K., Kaipainen A., Chllov D., Lahtinen I., Kuk E.,
Saksela O., Kaikkinen N., Alltalo K.;
RL EMBO J. 15:1751-1751(1996).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE: 96312526.
RA Lee J., Gray A., Yuan J., Luo S.-M., Avraham H., Wood W.I.;
RT "Vascular endothelial growth factor-related protein: a ligand and
specific activator of the tyrosine kinase receptor Flt4.";
RL Proc. Natl. Acad. Sci. U.S.A. 93:1988-1992(1996).
RN [4]
RP SEQUENCE FROM N.A.
RA Filtz L., Morris J.C., Towler P.S., Long A.J., Greco R.,
Burgess P., Giannotti J., Claretta A., Hennessey D., Kovacic S.,
Fitzgerald M., Scaltreto H., Welch N., Neben S., Flinerty H.,
Zolner R., Wang J., Nickbarg E., Gassaway R., Turner K.,
Wood C.R.;
RL Submitted (JUN-1996) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
INTRACELLULARLY AND IN THE GLAND LUMEN IN ORDER TO PREVENT THESE
FROM FORMING WATER-INSOLUBLE FIBERS TOO EARLY.
CC -1- SUBCELLULAR LOCATION: SECRETED.
CC -1- DOMAIN: HAS 82 APPROXIMATE REPEATS OF CYS-X-CYS-X-CYS.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation -
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
CC
CC EMBL: X94216; CAA63907.1; -
CC EMBL: U43142; AAA85214.1; -
CC EMBL: U58111; AAB02909.1; -
CC HSSP: P15692; 1VPF.
CC MIM: 601528; -
CC INTERPRO: IPR000072; -
CC INTERPRO: IPR002400; -
CC PFAM: PF00341; PDGF_1.
CC PRINTS: PR00438; GRCYSKNOT.
CC PROSITE: PS00249; PDGF_1; 1.
CC PROSITE: PS0278; PDGF_2; 1.
CC Mitogen: Growth factor; Glycoprotein; Signal; Repeat.
CC FT SIGNAL 1 ? 102 POTENTIAL.
CC FT PROPEP 1 ? 102 POTENTIAL.
CC CHAIN 103 419 VASCULAR ENDOTHELIAL GROWTH FACTOR C.

```

```

FT DOMAIN 275 365 4 X 24 AA TANDEM REPEATS.
FT REPEAT 275 298 1.
FT REPEAT 299 332 2.
FT REPEAT 323 346 3.
FT REPEAT 347 365 4 (PARTIAL).
FT CARBOHYD 175 175 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 205 205 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT CARBOHYD 240 240 N-LINKED (GLCNAC. . .) (POTENTIAL).
FT SIGNAL 419 AA; 46883 MW; 9F598719DB3E014F CRC64;
SQ

```

Query Match 31.2%; Score 74; DB 1; Length 419;
 Best Local Similarity 39.5%; Pred. No. 0.062;
 Matches 15; Conservative 6; Mismatches 15; Indels 2; Gaps 1;

```

QY 1 CERRKHLFVOYCKCCKNT--DSRCARQLENERCRC 36
DB 304 CGPHKEIDRNSCCVCCKNKLFPSCGANREDFENTCQC 341

```

```

RESULT 11
ID BAR3_CHITE STANDARD; PRT; 1700 AA.
AC 003376;
DT 01-OCT-1993 (Rel. 27, Created)
DT 01-OCT-1993 (Rel. 27, Last sequence update)
DT 01-OCT-1994 (Rel. 30, Last annotation update)
DE BALBIANI RING PROTEIN 3 PRECURSOR.
GN BR3.
OS Chironomus tentans (Midge).
OC Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
OC Pterygota; Neoptera; Endopterygota; Diptera; Nematocera;
OC Chironomidae; Chironomidae; Chironominae; Chironomus.
RN [1]
RP SEQUENCE FROM N.A.
RX TISSUE-SALIVARY GLAND;
RX MEDLINE: 90172404.
RA Paulsson G., Lendahl U., Galli J., Ericsson C., Wieslander L.;
RT "The Balbiani ring 3 gene in Chironomus tentans has a diverged
repetitive structure split by many introns.";
RL J. Mol. Biol. 211:331-349(1990).
CC -1- FUNCTION: USED BY THE LARVAE TO CONSTRUCT A SUPRAMOLECULAR
STRUCTURE, THE LARVAL TUBE. BALBIANI RING PROTEIN 3 COULD PLAY A
ROLE AS A TRANSPORT PROTEIN THAT BINDS TO OTHER PROTEINS
INTRACELLULARLY AND IN THE GLAND LUMEN IN ORDER TO PREVENT THESE
FROM FORMING WATER-INSOLUBLE FIBERS TOO EARLY.
CC -1- SUBCELLULAR LOCATION: SECRETED.
CC -1- TISSUE SPECIFICITY: SALIVARY GLAND.
CC -1- DOMAIN: HAS 82 APPROXIMATE REPEATS OF CYS-X-CYS-X-CYS.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation -
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
CC
CC EMBL: X52263; CAA36506.1; -
CC PIR: S08167; S08167.
CC HSSP: P18055; 2MRB.
CC INTERPRO: IPR000853; -
CC PRINTS: PR00876; MTNEMATODE.
CC Repeat; Signal.
CC FT SIGNAL 1 ? 1700 POTENTIAL.
CC FT CHAIN 1 ? 1700 BALBIANI RING PROTEIN 3.
CC SQ SEQUENCE 1700 AA; 186145 MW; 34202B28521B0815 CRC64;

```

Query Match 30.0%; Score 71; DB 1; Length 1700;
 Best Local Similarity 38.5%; Pred. No. 0.43;
 Matches 15; Conservative 5; Mismatches 11; Indels 8; Gaps 2;

OY 1 CERHKLHVOTCKSCCKNTDSRCKAROLENERTCRCDKP 39
 DB 126 CER-----SCACVCPNAD-KCTAPQVMNMDTCCCGCP 156

RESULT 12
 VEGF_MOUSE STANDARD; PRT; 415 AA.
 ID VEGF_MOUSE
 AC P97953;
 DT 15-JUL-1998 (Rel. 36, Created)
 DT 15-JUL-1998 (Rel. 36, Last sequence update)
 DT 30-MAY-2000 (Rel. 39, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR C PRECURSOR (VEGF-C) (FLT4 LIGAND) (FLT4-L).
 GN VEGFC.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN-BALB/C;
 RX MEDLINE; 97164697.
 RA Kukk E., Lymboussaki A., Taira S., Kaipainen A., Jeltsch M., Joukov V., Alitalo K.;
 RT "VEGF-C receptor binding and pattern of expression with VEGFR-3 suggests a role in lymphatic vascular development.";
 RL Development 122:3829-3837(1996).
 RP SEQUENCE FROM N.A.
 RC STRAIN-BALB/C;
 RX MEDLINE; 97388482.
 RA Flitz U.J., Morris J.C., Towler P., Long A., Burgess P., Greco R., Wang J., Gassaway R., Nickbarg E., Kovacic S., Claretta A., Giannotti J., Flinnerly H., Zollner R., Belier D.R., Leak L.V., Turner K.J., Wood C.R.;
 RT "Characterization of murine Flt4 ligand/VEGF-C.";
 RL Oncogene 15:613-618(1997).
 CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL; U73620; AAC52984.1; -;
 DR EMBL; U58112; AAB46707.1; -;
 DR HSSP; P15692; IVPF.
 DR MGD; MGI:109124; VEGFC.
 DR INTERPRO; IPR000072; -;
 DR INTERPRO; IPR002400; -;
 DR PRAM; PFO0341; PDGF_1;
 DR PRINTS; PR00438; GFCYKNOT.
 DR PROSITE; PS00249; PDGF_1; 1.
 DR PROSITE; PS50278; PDGF_2; 1.
 KW Mitogen; Growth factor; Glycoprotein; Signal; Repeat.
 FT SIGNAL 1
 FT PROPEP ? 98
 FT CHAIN 99 415 VASCULAR ENDOTHELIAL GROWTH FACTOR C.
 FT DOMAIN 271 361
 FT REPEAT 271 294 1.
 FT REPEAT 295 318 2.
 FT REPEAT 319 342 3.
 FT REPEAT 343 361 4. (PARTIAL).
 FT CARBOHYD 171 171 N-LINKED (GLCNAc. . .) (POTENTIAL).
 FT CARBOHYD 201 201 N-LINKED (GLCNAc. . .) (POTENTIAL).
 FT CARBOHYD 236 236 N-LINKED (GLCNAc. . .) (POTENTIAL).
 SQ SEQUENCE 415 AA; 46471 MW; D9D3DD3CBCC659D6 CRC64;

OY 1 CERHKLHVOTCKSCCKNT--DSRCKAROLENERTCR 36
 DB 300 CGPHKELDRSCQCVCKNKLFPNSGAREPDENTCQC 337

Query Match 29.1%; Score 69; DB 1; Length 415;
 Best Local Similarity 36.8%; Pred. No. 0.23;
 Matches 14; Conservative 6; Mismatches 16; Indels 2; Gaps 1;

RESULT 13
 CRS5_YEAST STANDARD; PRT; 69 AA.
 ID CRS5_YEAST
 AC P41902;
 DT 01-NOV-1995 (Rel. 32, Created)
 DT 01-NOV-1995 (Rel. 32, Last sequence update)
 DT 30-MAY-2000 (Rel. 39, Last annotation update)
 DE METALLOTHIONEIN-LIKE PROTEIN CRS5.
 GN CRS5 OR YOR031W.
 OS Saccharomyces cerevisiae (Baker's yeast).
 OC Eukaryota; Fungi; Ascomycota; Saccharomycetes; Saccharomycetales; Saccharomycetaceae; Saccharomyces.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC MEDLINE; 95014318.
 RA Chlotta V.C., Howard W.R., Liu X.F.;
 RT "CRS5 encodes a metallothionein-like protein in Saccharomyces cerevisiae.";
 RL J. Biol. Chem. 269:25295-25302(1994).
 RP SEQUENCE FROM N.A.
 RC STRAIN-S288C / FY1679;
 RA de Haan M., Maarse A.C., Grivell L.A.;
 RL Submitted (MAY-1995) to the EMBL/Genbank/DBJ databases.
 CC -1- FUNCTION: CRITICAL ROLE IN COPPER (SPECIFIC) HOMEOSTASIS AND DETOXIFICATION. MAY PROTECT BY DIRECTLY CHELATING AND SEQUESTERING COPPER IONS.
 CC -1- SIMILARITY: BELONGS TO FAMILY 13 IN METALLOTHIONEIN SUPERFAMILY.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL; L29056; AAA66061.1; -;
 DR EMBL; X87331; -; NOT_ANNOTATED_CDS.
 DR SGD; S0005557; CRS5.
 KW Metal-binding; Metal-thiolate cluster; Chelation.
 SQ SEQUENCE 69 AA; 7321 MW; CEEF91203A813FF4 CRC64;

Query Match 25.7%; Score 61; DB 1; Length 69;
 Best Local Similarity 31.6%; Pred. No. 0.47;
 Matches 12; Conservative 5; Mismatches 9; Indels 12; Gaps 2;

OY 10 QTCCK-----SKNTDSRCKAROLENERTCRCDKP 40
 DB 31 ECKCKDHSSTSPCKSCGCKCK-----EYTCCKSK 63

RESULT 14
 VEGF_SHEEP STANDARD; PRT; 146 AA.
 ID VEGF_SHEEP
 AC P50412;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 01-NOV-1997 (Rel. 35, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
 SQ SEQUENCE 146 AA; 16471 MW; D9D3DD3CBCC659D6 CRC64;

GN VEGF.
 OS Ovis aries (Sheep). Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Eukaryota; Metazoa; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 RN Bovidae; Caprinae; Ovis.
 RP [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-KIDNEY.
 RX MEDLINE: 97117958.
 RA Redner D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K.,
 RA Reynolds L.P., Moor R.M.;
 RT "Characterization and expression of vascular endothelial growth
 RT factor (VEGF) in the ovine corpus luteum."
 RL J. Reprod. Fert. 108:157-165(1996).
 CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 CC PERMEABILITY.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 CC SIMILARITY).
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: X89506; CAA61677.1; -
 DR HSSP: P15692; 1VPF.
 DR INTERPRO: IPR00072; -
 DR PFM: PF00341; PDGF_1; 1.
 DR PROSITE: PS00249; PDGF_1; 1.
 DR PROSITE: PS0278; PDGF_2; 1.
 KW Mitogen; Growth factor; Glycoprotein; Signal.
 FT SIGNAL 1 26 BY SIMILARITY.
 FT CHAIN 27 146 VASCULAR ENDOTHELIAL GROWTH FACTOR.
 FT DISULFID 51 93 BY SIMILARITY.
 FT DISULFID 82 127 BY SIMILARITY.
 FT DISULFID 86 129 BY SIMILARITY.
 FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
 FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
 FT CARBOHD 100 100 N-LINKED (GLCNAC...) (POTENTIAL).
 SQ SEQUENCE 146 AA; 17247 MW; 4E792CB557F91760 CRC64;
 Query Match 25.7%; Score 61; DB 1; Length 146;
 Best Local Similarity 44.1%; Pred. No. 0.86;
 Matches 15; Conservative 4; Mismatches 7; Indels 8; Gaps 2;
 Oy 8 FVOTCKSCSKNTDSRCKAROLENERTCRDCKPR 41
 Db 121 FLQHNKCECR--PKDKAROE-----KCDKPR 146
 RESULT 15
 MUBI_XENLA STANDARD; PRT; 398 AA.
 AC P38565;
 DT 01-OCT-1994 (rel. 30; Created)
 DT 01-OCT-1994 (rel. 30; Last sequence update)
 DT 01-OCT-1996 (rel. 34; Last annotation update)
 DE INTEGRIMENTARY MUCIN B.1 (FIM-B.1) (FRAGMENT).
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipridae; Pipidae;
 OC Xenopodinae; Xenopus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 91002513.

RA Probst J.C., Gertzen E.-M., Hoffmann W.;
 RT "An integrumentary mucin (FIM-B.1) from Xenopus laevis homologous with
 RT von Willebrand factor".
 RL Biochemistry 29:6240-6244(1990).
 CC -1- FUNCTION: COULD BE INVOLVED IN DEFENSE AGAINST MICROBIAL
 CC INFECTIONS. PROTECTS THE EPITHELIA FROM EXTERNAL ENVIRONMENT.
 CC -1- SUBCELLULAR LOCATION: SECRETED.
 CC -1- TISSUE SPECIFICITY: EXPRESSED AND STORED EXCLUSIVELY IN MATURE
 CC MUCOUS GLANDS OF THE SKIN.
 CC -1- PFM: EXTENSIVELY O-GLYCOSYLATED.
 CC -1- SIMILARITY: CONTAINS 1 WFEC DOMAIN.
 CC -1- SIMILARITY: CONTAINS 1 C-TERMINAL CYSTINE KNOT-LIKE DOMAIN (CTCK).
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: J02810; AAA9711.1; -
 DR PIR: A35281; A35281.
 DR HSSP: P04355; 4WT2.
 DR INTERPRO: IPR000359; -
 DR INTERPRO: IPR001007; -
 DR PFM: PF00007; 3ys_knot; 1.
 DR PROSITE: PS01208; WFEC; 1.
 DR PROSITE: PS01185; CTCK_1; 1.
 DR PROSITE: PS01225; CTCK_2; 1.
 KW Repeat; Amphibian skin; Glycoprotein.
 FT NON_TER 1 1
 FT DOMAIN 1 93
 FT REPEAT 1 7
 FT REPEAT 8 18
 FT REPEAT 19 29
 FT REPEAT 30 40
 FT REPEAT 41 51
 FT REPEAT 52 62
 FT REPEAT 66 76
 FT REPEAT 83 93
 FT DOMAIN 170 234
 FT DOMAIN 301 392
 FT DISULFID 301 356 BY SIMILARITY.
 FT DISULFID 323 370 BY SIMILARITY.
 FT DISULFID 332 386 BY SIMILARITY.
 FT DISULFID 336 388 BY SIMILARITY.
 FT DISULFID 391 391 BY SIMILARITY.
 SQ SEQUENCE 398 AA; 42101 MW; C06C86A805A3C3A4 CRC64;
 Query Match 25.5%; Score 60.5; DB 1; Length 398;
 Best Local Similarity 34.2%; Pred. No. 2.2;
 Matches 13; Conservative 7; Mismatches 15; Indels 3; Gaps 2;
 Oy 6 HLFVOTCK-CSCSKNTD--SRCKAROLENERTCRDCKPR 40
 Db 183 HMQTGCDVCTGCTGSGKTQCAPROCEKEIKSDERR 220
 Search completed: November 9, 2000, 15:40:21
 Job time: 574 sec

Thu Nov 9 15:49:54 2000

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:39:36 ; Search time 106.63 Seconds
(without alignments)
35.903 Million cell updates/sec

Title: US-09-266-543-6
Perfect score: 237
Sequence: 1 CERRKHLFVOTCKSCSKNTD.....RCKARQLNERTCRDCKPRR 41

Scoring table:
BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues
Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: SPREMBL_14:*
2: SP_archaea:*
3: SP_bacteria:*
4: SP_fungi:*
5: SP_human:*
6: SP_invertebrate:*
7: SP_mammal:*
8: SP_mhc:*
9: SP_phage:*
10: SP_plant:*
11: SP_rodent:*
12: SP_virus:*
13: SP_vertebrate:*
14: SP_unclassified:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	206	86.9	102	6	Q9XT61
2	206	86.9	102	11	063672
3	206	86.9	190	6	077643
4	206	86.9	190	6	09XSF3
5	206	86.9	190	11	09QX39
6	206	86.9	208	6	09XSF4
7	206	86.9	209	4	060720
8	206	86.9	214	6	09XSF5
9	206	86.9	214	11	09QXG7
10	206	86.9	254	4	016889
11	199	84.0	191	4	075875
12	190	80.2	194	13	042572
13	176.5	74.5	110	11	088911
14	159	67.1	188	13	073682
15	121.5	51.3	174	4	09UL23
16	82	34.6	188	6	09XSF4
17	82	34.6	1704	5	094446
18	75	31.6	1698	5	094438
19	72	30.4	420	6	09XSS0

20	61	25.7	63	5	Q23803	Q23803 chironomus
21	61	25.7	132	5	097450	097450 giardia lam
22	61	25.7	300	11	09WTP2	09WTP2 mus musculus
23	61	25.7	300	11	09QXV7	09QXV7 mus musculus
24	61	25.7	418	13	057352	057352 colurnix co
25	60	25.3	146	11	09QXG6	09QXG6 rattus norv
26	60	25.3	5376	11	088799	088799 mus musculus
27	59	24.9	147	4	09UH58	09UH58 homo sapien
28	59	24.9	2634	5	09WAT8	09WAT8 drosophila
29	59	24.9	2704	5	097458	097458 drosophila
30	58.5	24.7	1187	2	049549	049549 mycoplasma
31	58	24.5	1568	4	060486	060486 homo sapien
32	58	24.5	4307	5	019319	019319 caenorhabdi
33	57.5	24.3	616	6	097507	097507 sus scrofa
34	56	23.6	363	3	074331	074331 schistosach
35	56	23.6	451	10	09S9Y9	09S9Y9 arabidopsis
36	56	23.6	896	11	0921B1	0921B1 mus musculu
37	55.5	23.4	402	13	013106	013106 brachydanio
38	55	23.2	153	10	099235	099235 lupinus ang
39	55	23.2	425	5	017400	017400 caenorhabdi
40	55	23.2	615	13	057409	057409 brachydanio
41	54.5	23.0	447	5	023635	023635 onchocerca
42	54.5	23.0	651	5	018206	018206 caenorhabdi
43	54.5	23.0	1419	5	09VYA6	09VYA6 drosophila
44	54	22.8	186	5	09VMA3	09VMA3 drosophila
45	54	22.8	432	3	042654	042654 schistosach

ALIGNMENTS

RESULT 1
ID Q9XT61 PRELIMINARY; PRT; 102 AA.
AC Q9XT61;
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-MAY-2000 (TREMBlrel. 13, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
GN VEGF.
OS Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecoidea; Macaca.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=LONG;
RA Kim I.K., Ryan A.M., Rohan R., Amano S., Aguilar S., Miller J.W.,
RA Adams A.P.;
RT "Constitutive expression of VEGF, VEGFR-1 and VEGFR-2 in normal
RT eyes";
RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF106942; AAD20589.1; -
DR INTERPRO; IPR003072; -
DR PFM; PFM0341; PDGF; 1.
FT NON TER
SQ SEQUENCE 102 AA; 12065 MW; 5F2D1A75DD29E02 CRC64;

Query Match
Best Local Similarity 90.9%; Pred. No. 5.3e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV--OTCKSCSKNTDSRCKARQLNERTCRDCKPRR 41
Db 59 ERRKHLFVODPOTCKSCSKNTDSRCKARQLNERTCRDCKPRR 102

RESULT 2
ID 063672 PRELIMINARY; PRT; 102 AA.
AC 063672; 063682;
DT 01-NOV-1996 (TREMBlrel. 01, Created)

DT 01-NOV-1998 (TREMblrel. 08, Last sequence update)
DT 01-MAY-2000 (TREMblrel. 13, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF188) (FRAGMENT).
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-CD; TISSUE=LUNG;
RA Kim I., Ryan A., Rohan R., Aguilar S., Amano S., Brown L.F.,
RA Miller J., Adams A.P.;
RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF 29-52 FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY; TISSUE=BRAIN;
RA Yakovlev A.G., Faden A.I.;
RL Submitted (JUL-1993) to the EMBL/GenBank/DBJ databases.
RN [3]
RP SEQUENCE OF 29-51 FROM N.A.
RC MEDLINE; 9343939.
RA Ladoux A., Frelin C.;
RT "Expression of vascular endothelial growth factor by cultured
RT endothelial cells from brain microvessels."
RL Biochem. Biophys. Res. Commun. 194:799-803(1993).
DR EMBL; AF062644; AAC16448.1; -.
DR EMBL; L20913; AAA42334.1; -.
DR EMBL; S64321; CAB32322.1; -.
DR HSSP; P15692; 2VGH.
DR INTERPRO: IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
FT NON_TER 1
SQ SEQUENCE 102 AA; 12163 MW; CDFC6A6914D07D2B CRC64;

Query Match 86.9%; Score 206; DB 11; Length 102;
Best Local Similarity 90.9%; Pred. No. 5.3e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV--QTCKSCKNNTDSCKAROLE-NERTCRCDKPRR 41
DB 59 ERRKHLFVDPQTCKSCKNNTDSCKAROLELNERTCRCDKPRR 102

RESULT 3
ID 077643 PRELIMINARY; PRT; 190 AA.
AC 077643;
DT 01-NOV-1998 (TREMblrel. 08, Created)
DT 01-NOV-1998 (TREMblrel. 08, Last sequence update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-COLUMBIA-RAMBOULIER;
RA Cheng C.Y., Brace R.A.;
RT "Ovine vascular endothelial growth factor: Nucleotide sequence and
RT expression in fetal tissues."
RL Growth Factors 0:0-0(1998).
DR EMBL; AF071015; AAC23608.1; -.
DR HSSP; P15692; 2VGH.
DR INTERPRO: IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR PRODOM; PD001629; -; 1.
SQ SEQUENCE 190 AA; 22342 MW; 0D5E3B3E5C53E739 CRC64;

Query Match 86.9%; Score 206; DB 6; Length 190;

Best Local Similarity 90.9%; Pred. No. 8.7e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV--QTCKSCKNNTDSCKAROLE-NERTCRCDKPRR 41
DB 147 ERRKHLFVDPQTCKSCKNNTDSCKAROLELNERTCRCDKPRR 190

RESULT 4
ID 09XSF3 PRELIMINARY; PRT; 190 AA.
AC 09XSF3;
DT 01-NOV-1999 (TREMblrel. 12, Created)
DT 01-NOV-1999 (TREMblrel. 12, Last sequence update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 164.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Jungling L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF133248; AAD29682.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22292 MW; 2053500BC9085CE0 CRC64;

Query Match 86.9%; Score 206; DB 6; Length 190;
Best Local Similarity 90.9%; Pred. No. 8.7e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV--QTCKSCKNNTDSCKAROLE-NERTCRCDKPRR 41
DB 147 ERRKHLFVDPQTCKSCKNNTDSCKAROLELNERTCRCDKPRR 190

RESULT 5
ID 09X39 PRELIMINARY; PRT; 190 AA.
AC 09X39;
DT 01-MAY-2000 (TREMblrel. 13, Created)
DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;
OC Spalax.
RN [1]
RP SEQUENCE FROM N.A.
RA Avivi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;
RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax
RT ehrenbergi: the role of vascular endothelial growth factor."
RL FEBS Lett. 452:133-140(1999).
DR EMBL; AF186236; AAD56245.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22488 MW; 2228383BC65F0BFE CRC64;

Query Match 86.9%; Score 206; DB 11; Length 190;
Best Local Similarity 90.9%; Pred. No. 8.7e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

OY 2 ERRKHLFV--QTCKSCKNNTDSCKAROLE-NERTCRCDKPRR 41

Thu Nov 9 15:49:54 2000

```

Db 147 ERRHLEFVDPQTCCKSKNTDSRCKARQLELNERTCRCKPR 190
|||||
RESULT 6
ID 09XSF4 PRELIMINARY; PRT; 208 AA.
09XSF4
AC 09XSF4
DT 01-NOV-1999 (TEMBLrel. 12, Created)
DT 01-NOV-1999 (TEMBLrel. 12, Last sequence update)
DT 01-JUN-2000 (TEMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 182.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Jinsjing L., Roque R.S.;
RU Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF133249; AAD29683.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 208 AA; 24400 MW; CF77AC591F5C2BBE CRC64;

```

```

Query Match 86.9%; Score 206; DB 6; Length 208;
Best Local Similarity 90.9%; Pred. No. 9.4e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

```

```

QY 2 ERRHLEFV---QTCCKSKNTDSRCKARQLE-NERTCRCKPR 41
Db 165 ERRHLEFVDPQTCCKSKNTDSRCKARQLELNERTCRCKPR 208
|||||

```

```

RESULT 7
ID 060720 PRELIMINARY; PRT; 209 AA.
AC 060720;
DT 01-AUG-1998 (TEMBLrel. 07, Created)
DT 01-MAY-1999 (TEMBLrel. 10, Last sequence update)
DT 01-JUN-2000 (TEMBLrel. 14, Last annotation update)
DE VEGF183 PROTEIN PRECURSOR (VASCULAR ENDOTHELIAL GROWTH FACTOR 183).
GN VEGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=KIDNEY;
RX MEDLINE; 99096474.
RA Lei J., Jiang A., Pei D.;
RT "Identification and characterization of a new splicing variant of
RT vascular endothelial growth factor: VEGF183".
RU Biochim. Biophys. Acta. Gene Struct. Expr. 1443:400-406(1998).
RN [1]
RP SEQUENCE OF 114-209 FROM N.A.
RC TISSUE=RETINA;
RA Jinsjing L., Roque R.S.;
RU Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AJ010438; CAK09179.1; -.
DR EMBL; AF062645; AAC16730.1; -.
DR HSSP; P15692; 2VPE.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR PRODOM; PD001629; -. 1.
KW signal.
FT CHAIN 27 209 POTENTIAL.
VEGF183 PROTEIN.
SQ SEQUENCE 209 AA; 24422 MW; F01CEACD945D6CA CRC64;

```

```

Query Match 86.9%; Score 206; DB 4; Length 209;
Best Local Similarity 90.9%; Pred. No. 9.4e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

```

```

QY 2 ERRHLEFV---QTCCKSKNTDSRCKARQLE-NERTCRCKPR 41
Db 166 ERRHLEFVDPQTCCKSKNTDSRCKARQLELNERTCRCKPR 209
|||||

```

```

RESULT 8
ID 09XSF5 PRELIMINARY; PRT; 214 AA.
09XSF5
AC 09XSF5
DT 01-NOV-1999 (TEMBLrel. 12, Created)
DT 01-NOV-1999 (TEMBLrel. 12, Last sequence update)
DT 01-JUN-2000 (TEMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 188.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Jinsjing L., Roque R.S.;
RU Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF133250; AAD29684.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 214 AA; 25151 MW; 2269981AFBC60058 CRC64;

```

```

Query Match 86.9%; Score 206; DB 6; Length 214;
Best Local Similarity 90.9%; Pred. No. 9.6e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

```

```

QY 2 ERRHLEFV---QTCCKSKNTDSRCKARQLE-NERTCRCKPR 41
Db 171 ERRHLEFVDPQTCCKSKNTDSRCKARQLELNERTCRCKPR 214
|||||

```

```

RESULT 9
ID 090XG7 PRELIMINARY; PRT; 214 AA.
AC 090XG7;
DT 01-MAY-2000 (TEMBLrel. 13, Created)
DT 01-MAY-2000 (TEMBLrel. 13, Last sequence update)
DT 01-JUN-2000 (TEMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR-A188.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A.
RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;
RT "Developmental expression of vascular endothelial growth factor-A
RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat
RT mesenteric muscle".
RU Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF215725; AAF19211.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 214 AA; 25239 MW; 60FBB876F5304946 CRC64;

```

```

Query Match 86.9%; Score 206; DB 11; Length 214;
Best Local Similarity 90.9%; Pred. No. 9.6e-22;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

```

```

QY 2 ERRHLEFV---QTCCKSKNTDSRCKARQLE-NERTCRCKPR 41
Db 171 ERRHLEFVDPQTCCKSKNTDSRCKARQLELNERTCRCKPR 214
|||||

```

QY 2 ERRHLEFV---OTCKSCCKNTDSRCKAROLE-NERTCRCDKPRR 41
|||||
Db 171 ERRHLEFVODPOTCKSCCKNTDSRCKAROLELNERTCRCDKPRR 214

RESULT 10
Q16889 PRELIMINARY; PRT; 254 AA.

AC Q16889;
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-NOV-1998 (TREMBLrel. 08, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
GN VEGF 206.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 92168017.
RA Houck K.A., Ferrara N., Winer J., Cachianes G., Li B., Leung D.W.,
RT "The vascular endothelial growth factor family: identification of a
fourth molecular species and characterization of alternative splicing
of RNA."
RL Mol. Endocrinol. 5:1806-1814(1991).
DR EMBL; S85192; AAC63102.1; -.
DR EMBL; S85224; AAC63101.1; -.
DR EMBL; S85199; AAC63101.1; JOINED.
DR EMBL; S85201; AAC63101.1; JOINED.
DR EMBL; S85219; AAC63101.1; JOINED.
DR EMBL; S85222; AAC63101.1; JOINED.
DR HSSP; P15692; ZVGF.
DR INTERPRO: IPR000072; -.
DR PFM; PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
FT NON_TER 1
SQ SEQUENCE 254 AA; 29461 MW; 069DFE9B9723DBA8 CRC64;

Query Match 86.9%; Score 206; DB 4; Length 254;
Best Local Similarity 90.9%; Pred. No. 1.1e-21;
Matches 40; Conservative 0; Mismatches 0; Indels 4; Gaps 2;

QY 2 ERRHLEFV---OTCKSCCKNTDSRCKAROLE-NERTCRCDKPRR 41
|||||
Db 211 ERRHLEFVODPOTCKSCCKNTDSRCKAROLELNERTCRCDKPRR 254

RESULT 11
Q075875 PRELIMINARY; PRT; 191 AA.

AC Q075875;
DT 01-NOV-1998 (TREMBLrel. 08, Created)
DT 01-NOV-1998 (TREMBLrel. 08, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RX TISSUE-BREAST.
RC MEDLINE; 98119755.
RA Clafey K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,
RA Abrams K.R., Lee S.W., Detmar M.,
RT "Identification of a human VEGF/VEGF 3' untranslated region mediating
RT hypoxia-induced mRNA stability."
RL Mol. Biol. Cell 9:469-481(1998).
DR EMBL; AF022375; AAC63145.1; -.
DR HSSP; P15692; IVPF.
DR INTERPRO: IPR000072; -.
DR PFM; PF00341; PDGF; 1.
DR PROSITE: PS001629; -.
FT NON_TER 1

SQ SEQUENCE 191 AA; 22320 MW; B5E435838C72715B CRC64;

Query Match 84.0%; Score 199; DB 4; Length 191;
Best Local Similarity 88.6%; Pred. No. 8.5e-21;
Matches 39; Conservative 0; Mismatches 1; Indels 4; Gaps 2;

QY 2 ERRHLEFV---OTCKSCCKNTDSRCKAROLE-NERTCRCDKPRR 41
|||||
Db 148 ERRHLEFVODPOTCKSCCKNTDSRCKAROLELNERTCRCDKPRR 191

RESULT 12
Q042572 PRELIMINARY; PRT; 194 AA.

AC Q042572;
DT 01-JAN-1998 (TREMBLrel. 05, Created)
DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 196.
GN VEGF.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;
OC Xenopodidae; Xenopus.
RN [1]
RP SEQUENCE FROM N.A.
RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;
RL Submitted (JUN-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF008594; AAB63680.1; -.
DR HSSP; P15692; ZVGF.
DR INTERPRO: IPR000072; -.
DR PFM; PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
FT NON_TER 1
SQ SEQUENCE 194 AA; 22672 MW; 85D7BEC7CEFE17E CRC64;

Query Match 80.2%; Score 190; DB 13; Length 194;
Best Local Similarity 74.5%; Pred. No. 1.6e-19;
Matches 38; Conservative 2; Mismatches 1; Indels 10; Gaps 3;

QY 1 CE-----RRHLEFV---OTCKSCCKNTDSRCKAROLE-NERTCRCDKPRR 41
|||||
Db 144 CEPTEKSGRRHLEFVODPOTCKSCCKNTDSRCKAROLELNERTCRCDKPRR 194

RESULT 13
Q088911 PRELIMINARY; PRT; 110 AA.

AC Q088911;
DT 01-NOV-1998 (TREMBLrel. 08, Created)
DT 01-NOV-1998 (TREMBLrel. 08, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR A 110 PRECURSOR (FRAGMENT).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY; TISSUE-PENIS;
RA Burchardt M., Burchardt T., Chen M.-W., Shabsigh A., de la Taille A.,
RA Buttyan R., Shabsigh R.,
RT "Expression of Messenger RNA Splice Variants for Vascular Endothelial
RT Growth Factor in the Adult Rat and Human Penis."
RL Submitted (JUL-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF080594; AAC36708.1; -.
DR HSSP; P15692; IVPF.
DR INTERPRO: IPR000072; -.
DR PFM; PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
FT NON_TER 1

SQ SEQUENCE 110 AA; 12713 MW; B81B79AC08D89F06 CRC64;

Query Match 74.5%; Score 176.5; DB 11; Length 110;

Best Local Similarity 94.1%; Pred. No. 8.3e-18; Mismatches 0; Indels 1; Gaps 1;

OY 9 VOTCKSCKNTDSRCKAROLE-NERTCRCDKPR 41

Db 77 MOTCKSCKNTDSRCKAROLENERTCRCDKPR 110

RESULT 14

073682

ID 073682 PRELIMINARY; PRT; 188 AA.

AC 073682; 01-AUG-1998 (TREMBlrel. 07, Created)

DT 01-AUG-1998 (TREMBlrel. 07, Last sequence update)

DE VASCULAR ENDOTHELIAL GROWTH FACTOR ISOPFORM 165.

GN VEGF

OS Brachydanio rerio (zebrafish) (zebra danio).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;

OC Cypriniformes; Cyprinidae; Rasbora; Danio.

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE; 98222600.

RA Liang D., Xu X., Chin A.J., Balasubramanian N.V., Teo M.A.L.,

RT "Cloning and characterization of vascular endothelial growth factor

(VEGF) from zebrafish, Danio rerio."

RL Biochim. Biophys. Acta 1397:14-20(1998).

DR EMBL; AF016244; AAC41274.1; -.

DR HSSP; P15692; 2VGH.

DR ZFIN; ZDB-GENE-990415-273; vegf.

DR INTERPRO; IPR000072; -.

DR PFAM; PF00341; PDGF; 1.

DR PROSITE; PS00249; PDGF; 1.

DR PRODOM; PD001629; -; 1.

SQ SEQUENCE 188 AA; 21756 MW; FD20334EF365DIE CRC64;

Query Match 67.1%; Score 159; DB 13; Length 188;

Best Local Similarity 72.1%; Pred. No. 3.7e-15; Mismatches 4; Indels 4; Gaps 2;

OY 2 ERRKHLFVQ--TCKSCKNTDSRCKAROLE-NERTCRCDKPR 40

Db 146 ERRKRLVYVDPLOTCKSCKNTDSRCKAROLENERTCRCDKPR 188

RESULT 15

090L23

ID 090L23 PRELIMINARY; PRT; 174 AA.

AC 090L23; 01-MAY-2000 (TREMBlrel. 13, Created)

DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)

DE VASCULAR PERMEABILITY FACTOR 148.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.

RN [1]

RP SEQUENCE FROM N.A.

RC TISSUE-GLOMERULI;

RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.M.,

RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA

RT and receptor mRNA expression in human glomeruli, and the

RT identification of VEGF148 mRNA, a novel truncated splice variant."

DR EMBL; AF091352; AAD5345.1; -.

DR INTERPRO; IPR000072; -.

DR PFAM; PF00341; PDGF; 1.

DR PROSITE; PS00249; PDGF; 1.

SQ SEQUENCE 174 AA; 20218 MW; AE88400CA7757644 CRC64;

OY 2 ERRKHLFVQ--TCKSCKNTDSRCK 24

Db 148 ERRKHLFVDPLOTCKSCKNTDSRCK 173

Query Match 51.3%; Score 121.5; DB 4; Length 174;

Best Local Similarity 88.5%; Pred. No. 6.9e-10; Mismatches 0; Indels 3; Gaps 1;

Search completed: November 9, 2000, 15:39:37
Job time: 614 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:32:00 ; Search time 72.39 Seconds

(without alignments)
22.793 Million cell updates/sec

Title: US-09-266-543-7

Sequence: 1 CNDGLESVPFESNTMOMRIKPH 26

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	133	96.4	232	2 A41551	vascular endothell
2	127	92.0	190	2 S52130	vascular endothell
3	122	88.4	190	2 B44881	vascular endothell
4	122	88.4	214	2 A44881	vascular endothell
5	121	87.7	120	2 A33787	vascular endothell
6	121	87.7	146	2 S57956	ovine vascular end
7	121	87.7	190	2 B40080	vascular endothell
8	121	87.7	190	2 A35987	glioma-derived vas
9	96.6	128	2	151295	vascular endothell
10	83	60.1	133	2 B49530	vascular endothell
11	76	55.1	158	2 A56125	placental growth f
12	75	54.3	149	2 A41236	vascular endothell
13	66	47.8	188	2 UC4680	vascular endothell
14	66	47.8	207	2 UC4679	vascular endothell
15	51	37.0	385	2 C65119	acridflavin resista
16	50	36.2	830	2 T41509	serine/threonine-p
17	49	35.5	308	2 T04009	hypothetical prote
18	47	34.1	742	2 T25415	hypothetical prote
19	47	34.1	964	2 T32482	hypothetical prote
20	47	34.1	1209	2 T21555	hypothetical prote
21	46.5	33.7	578	2 S50446	VAC8 protein - yan
22	46	33.3	566	2 A36881	MPK2-reactive phos
23	46	33.3	1306	2 T46451	hypothetical prote
24	46	33.3	1780	2 T17272	hypothetical prote
25	45	32.6	111	2 A69171	hypothetical prote
26	45	32.6	583	2 T50103	probable oxidoredu
27	45	32.6	865	2 S69044	hypothetical prote
28	45	32.6	1536	2 E72310	hypothetical prote
29	45	32.6	1980	2 S54307	myosin heavy chain

30	44.5	32.2	803	2 T47035	hypothetical prote
31	44.5	32.2	853	2 S54384	envelope polyprote
32	44.5	32.2	1493	2 T16404	hypothetical prote
33	44	31.9	116	2 B72110	hypothetical prote
34	44	31.9	192	2 A48353	genome polyprotein
35	44	31.9	251	2 T08315	hypothetical prote
36	44	31.9	368	1 BGHUN	biglycan precursor
37	44	31.9	477	2 A75545	amitophosphoribosy
38	44	31.9	947	2 S75644	hypothetical prote
39	44	31.9	872	1 GNXSN1	genome polyprotein
40	44	31.9	1280	2 T42514	kinase anchor prot
41	44	31.9	1290	2 A55094	chromosomal protei
42	44	31.9	1824	2 T07589	disease resistance
43	44	31.5	254	2 A56214	switch activating
44	43.5	31.5	875	2 I40862	lota toxin compone
45	43.5	31.5	875	2 I40862	lota toxin compone

ALIGNMENTS

RESULT 1
A41551
vascular endothelial growth factor 206 precursor - human
N:Alternate names: Vascular permeability factor
N:Contains: Vascular endothelial growth factor 121 (VEGF 121); VEGF 165; VEGF 189; VE
C:Species: Homo sapiens (man)
C:Date: 28-Aug-1992 #sequence-revision 28-Aug-1992 #text-change 05-Nov-1999
C:Accession: A41551; C41551; B41551; A40454; B40454; A40079; A40080; J01463;
R:Houck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Li, B.; Leung, D.W.
Mol. Endocrinol. 5, 1806-1814, 1991
A>Title: The vascular endothelial growth factor family: Identification of a fourth mo
A:Reference number: A41551; MUID:92168017
A:Accession: A41551
A:Molecule type: mRNA
A:Residues: 1-232 <HCU>
A:Cross-references: GB:S85192; NID:9246155; PID:9246156
A:Accession: C41551
A>Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <H0U2>
A:Accession: B41551
A:Molecule type: DNA
A:Residues: 1-140, 'N', 183-232 <T11>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63976;
A:Accession: B40454
A:Molecule type: DNA
A:Residues: 1-140, 'N', 183-232 <T12>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975;
A:Accession: C40454
A:Molecule type: DNA
A:Residues: 1-141, 227-232 <T13>
A:Cross-references: GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978
R:Reck, P.J.; Hauser, S.D.; Krivy, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.
Science 246, 1309-1312, 1989
A>Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF.
A:Reference number: A40079; MUID:90069609
A:Accession: A40079
A>Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-165, 183-232 <KCC>
A:Cross-references: GB:M27281; NID:9340300; PID:NAA36807.1; PID:9340301
R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A>Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.

A:Reference number: A40080; MUID:90069608
A:Accession: A40080
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <LEU>
A:Cross-references: GB:M32977; NID:q181970; PIDN:AAA35789.1; PID:q181971
R:Meindell, K.; Marmer, D.; Welch, H.A.
Biochim. Biophys. Res. Commun. 183, 1167-1174, 1992
A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial
A:Reference number: JQ1463; MUID:92231879
A:Accession: JQ1463
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <MEI>
A:Cross-references: EMBL:X62568; NID:g37658; PIDN:CAA44447.1; PID:g37659
A:Experimental source: AIDS-Kaposi's sarcoma cell
A:Accession: JQ1464
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 227-232 <ME2>
A:Experimental source: AIDS-Kaposi's sarcoma cell
R:Connolly, D.T.; Olander, J.V.; Heuvelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; Hay
J. Biol. Chem. 264, 20017-20024, 1989
A:Title: Human vascular permeability factor. Isolation from U937 cells.
A:Reference number: A34492; MUID:90062112
A:Accession: A34492
A:Molecule type: protein
A:Residues: 27-36;43-49, 'R', 72-76, 'Q', 78-81;59-71 <CON>
A:Comment: The most common of several alternatively spliced forms is VEGF 165.
C:Genetics:
A:Gene: GDB:VEGF
A:Cross-references: GDB:132244; OMIM:192240
A:Map position: 6p21-6p12
C:Function:
A:Description: promotes fluid and protein leakage from blood vessels
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pro
F:1-233/Product: vascular endothelial growth factor 206 precursor #status predicted <V20
F:1-165,183-232/Product: vascular endothelial growth factor 189 precursor #status predic
F:1-141,227-232/Product: vascular endothelial growth factor 121 precursor #status predic
F:1-26/Domain: signal sequence #status predicted <SIG>
F:101/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 96.4%; Score 133; DB 2; Length 232;
Best Local Similarity 96.2%; Pred. No. 1.9e-13;
Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNTMQIMRIKPH 26
DB 87 CNDGELCVPTESNTMQIMRIKPH 112

RESULT 2
S52130
Vascular endothelial growth factor - pig
C:Species: Sus scrofa domestica (domestic pig)
C:Date: 14-Jul-1995 #sequence.revision 21-Jul-1995 #text_change 05-Nov-1999
C:Accession: S52130
R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.
Biochim. Biophys. Acta 1260, 235-238, 1995
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growth f
A:Reference number: S52130; MUID:95143284
A:Accession: S52130
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <SHA>
A:Cross-references: GB:X81380; NID:g587559; PIDN:CAA57143.1; PID:g587560

Query Match 92.0%; Score 127; DB 2; Length 190;
Best Local Similarity 92.3%; Pred. No. 1.3e-12;
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNTMQIMRIKPH 26
DB 87 CNDGLESVPTEESNTMQIMRIKPH 26

DB 86 CNDGELCVPTESNTMQIMRIKPH 111

RESULT 3
B44881
Vascular endothelial growth factor-1 precursor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence.revision 03-Feb-1994 #text_change 05-Nov-1999
C:Accession: B44881; A43351; A61029
R:Breier, G.; Albrecht, U.; Steier, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenes
A:Reference number: A44881; MUID:92274860
A:Accession: B44881
A:Molecule type: mRNA
A:Residues: 1-190 <BRE>
A:Cross-references: GB:S38083; NID:g249858; PIDN:AAB22253.1; PID:g249859
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBI:P:107623)
R:Claflay, K.P.; Milkison, W.O.; Spiegelman, B.M.
J. Biol. Chem. 267, 16317-16322, 1992
A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and a
A:Reference number: A43351; MUID:92355593
A:Accession: A43351
A:Molecule type: mRNA
A:Residues: 1-116, 'ER', 119-190 <CLA>
A:Cross-references: GB:M95200; NID:g202350; PIDN:AAA40547.1; PID:g202351
A:Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBI:P:110675)
R:Rosenthal, R.A.; Megyesi, T.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.
Growth Factors 4, 53-59, 1990
A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelia
A:Reference number: A61029; MUID:91197543
A:Accession: A61029
A:Molecule type: protein
A:Residues: 27-38 <ROS>
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein;

Query Match 88.4%; Score 122; DB 2; Length 190;
Best Local Similarity 88.5%; Pred. No. 8.2e-12;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNTMQIMRIKPH 26
DB 86 CNDGELCVPTESNTMQIMRIKPH 111

RESULT 4
A44881
Vascular endothelial growth factor-3 precursor - mouse
N:Contains: vascular endothelial growth factor-2; vascular permeability factor
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence.revision 03-Feb-1994 #text_change 08-Oct-1999
C:Accession: A44881; C44881; A60932; S52136
R:Breier, G.; Albrecht, U.; Steier, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenes
A:Reference number: A44881; MUID:92274860
A:Accession: A44881
A:Molecule type: mRNA
A:Residues: 1-214 <BRE>
A:Cross-references: GB:S37052; NID:g249856; PIDN:AAB22252.1; PID:g249857
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBI:P:104678)
A:Accession: C44881
A:Molecule type: mRNA
A:Residues: 1-140, 205-214 <BR2>
A:Cross-references: GB:S38100; NID:g249860; PIDN:AAB22254.1; PID:g249861
A:Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBI:P:107625)
R:Claus, M.; Gerlach, M.; Gerlach, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan, Y
J. Exp. Med. 172, 1535-1545, 1990
A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces endot
A:Reference number: A60932; MUID:91079755

A:Accession: A60932
A:Molecule type: protein
A:Residues: 27-33 <CLa>
R:Singhara, T.; Kaul, S.C.; Mitsui, Y.; Wadwa, R.
Biochim. Biophys. Acta 1224, 365-370, 1994
A:title: Enhanced expression of multiple forms of VEGF is associated with spontaneous IM
A:Reference number: S52136; MID:95101726
A:Accession: S52136
A>Status: preliminary
A:Molecule type: protein
A:Residues: 27-46 <SUG>
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.
C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodimer;
F:1-26/Domain: signal sequence #status predicted <Sig>
F:27-214/Product: vascular endothelial growth factor-3 #status experimental <Mat>

Query Match 88.4%; Score 122; DB 2; Length 214;
Best Local Similarity 88.5%; Pred. No. 9.4e-12;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNTIMQIRKPH 26
|||||
Db 86 CNDALCVPTSESNITMQRKPH 111

RESULT 5
A33787
Vascular endothelial growth factor (version 1) - bovine
C:Species: Bos primigenius taurus (cattle)
C>Date: 16-Mar-1990 #sequence_revision 16-Mar-1990 #text_change 05-Nov-1999
C:Accession: A33787
R:Ritscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crisp
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:title: Vascular endothelial growth factor: a new member of the platelet-derived growth
A:Reference number: A33787; MID:90121225
A:Accession: A33787
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-120 <TIS>
A:Cross-references: GB:M33750; NID:g163810; PIDN:AAA30805.1; PID:g163811
C:Keywords: alternative splicing

Query Match 87.7%; Score 121; DB 2; Length 120;
Best Local Similarity 88.5%; Pred. No. 7e-12;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNTIMQIRKPH 26
|||||
Db 60 CNDSELCVPTSESNITMQRKPH 85

RESULT 6
S57956
ovine vascular endothelial growth factor - sheep
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C>Date: 13-Jan-1996 #sequence_revision 01-Mar-1996 #text_change 05-Nov-1999
C:Accession: S57956
R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.
submitted to the EMBL Data Library, July 1995
A:Reference number: S57956
A:Accession: S57956
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-146 <RED>
A:Cross-references: EMBL:X89506; NID:g899350; PIDN:CAA61677.1; PID:g899351

Query Match 87.7%; Score 121; DB 2; Length 146;
Best Local Similarity 88.5%; Pred. No. 8.7e-12;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNTIMQIRKPH 26
|||||
Db 86 CNDSELCVPTSESNITMQRKPH 111

RESULT 7
B40080
vascular endothelial growth factor precursor (version 2) - bovine
C:Species: Bos primigenius taurus (cattle)
C>Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 05-Nov-1999
C:Accession: B40080; B33787; A33255
R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A:Reference number: B40080; MID:90069608
A:Accession: B40080
A:Molecule type: mRNA
A:Residues: 1-190 <LEU>
A:Cross-references: GB:M32976; NID:g163006; PIDN:AAA30502.1; PID:g163007
R:Ritscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Cr
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:title: Vascular endothelial growth factor: a new member of the platelet-derived gro
A:Reference number: A33787; MID:90121225
A:Accession: B33787
A:Molecule type: mRNA
A:Residues: 27-190 <TIS>
A:Cross-references: GB:M31836; NID:g163808; PIDN:AAA30804.1; PID:g163809
R:Ferrara, N.; Henzel, W.J.
Biochem. Biophys. Res. Commun. 161, 851-858, 1989
A:title: Pituitary follicular cells secrete a novel heparin-binding growth factor spe
A:Reference number: A33255; MID:8926596
A:Accession: A33255

Query Match 87.7%; Score 121; DB 2; Length 190;
Best Local Similarity 88.5%; Pred. No. 1.2e-11;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNTIMQIRKPH 26
|||||
Db 86 CNDSELCVPTSESNITMQRKPH 111

RESULT 8
A35987
glioma-derived vascular endothelial cell growth factor - rat
C:Species: Rattus norvegicus (Norway rat)
C>Date: 16-Nov-1990 #sequence_revision 16-Nov-1990 #text_change 05-Nov-1999
C:Accession: A35987
R:Conn, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Pallst, T.M.; Ho
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990
A:title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is
A:Reference number: A35987; MID:90207249
A:Accession: A35987
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <CON>
A:Cross-references: GB:M32167; NID:g204287; PIDN:AAA41211.1; PID:g204288

Query Match 87.7%; Score 121; DB 2; Length 190;
Best Local Similarity 84.6%; Pred. No. 1.2e-11;
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEESNTIMQIRKPH 26
|||||
Db 86 CNDALCVPTSESNITMQRKPH 111

```

RESULT      9
151295
Vascular endothelial growth factor - qual1 (fragment)
C:Species: Phasianidae gen. sp. (qual1)
C:Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 28-Feb-1997
C:Accession: 151295
R:Flamme, I.; Breier, G.; Rissau, W.
Dev. Biol. 169, 699-712, 1995
A:Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (flk-1) are expressed in the developing chick chorioallantoic membrane
A:Reference number: 151295; MUID:95301109
A:Accession: 151295
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-128 <FLA>
A:Cross-references: GB:S78343; NID:g999147; PID:g999148
C:Genetics:
A:Gene: VEGF

Query Match      69.6%; Score 96; DB 2; Length 128;
Best Local Similarity 65.4%; Pred. No. 6.8e-08;
Matches 17; Conservative 3; Mismatches 6; Indels 0; Gaps 0;

OY      1  CNDEGLSEVPTEESNITMOIMRIKPH 26
        |  |||||  ||  :  |||  |||||
Db      28  CGDEGLECPVDVYVNVIMEIAIRKPH 53

RESULT      10
B49530
Vascular endothelial growth factor homolog A2R, 14.7K - Orf virus
C:Species: Orf virus
C:Date: 07-Apr-1994 #sequence_revision 18-Nov-1994 #text_change 08-Oct-1999
C:Accession: B49530
R:Lyttle, D.J.; Fraser, K.M.; Fleming, S.B.; Mercer, A.A.; Robinson, A.J.
J. Virol. 68, 84-92, 1994
A:Title: Homologs of vascular endothelial growth factor are encoded by the poxvirus orf
A:Reference number: A49530; MUID:94076465
A:Contents: NZ2
A:Accession: B49530
A:Status: preliminary
A:Molecule type: DNA
A:Residues: 1-133 <LTY>
A:Cross-references: GB:S67520; NID:g456897; PID:AA29220.1; PID:g456899
A:Note: sequence inconsistent with nucleotide translation
A:Note: sequence extracted from NCBI Backbone (NCBIN:141420, NCBIPI:141425)

Query Match      60.1%; Score 83; DB 2; Length 133;
Best Local Similarity 66.7%; Pred. No. 8.2e-06;
Matches 14; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

OY      1  CNDEGLSEVPTEESNITMOIM 21
        ||||  ||  |||||  |||:::
Db      71  CNDESLSEVPTEEVNVTMELL 91

RESULT      11
A56125
Placental growth factor precursor - rat
C:Species: Rattus norvegicus (Norway rat)
C:Date: 19-Oct-1995 #sequence_revision 19-Oct-1995 #text_change 05-Nov-1999
C:Accession: A56125
R:Disalvo, J.; Bayne, M.L.; Conn, G.; Kwok, P.W.; Trivedi, P.G.; Soderman, D.D.; Palis,
J. Biol. Chem. 270, 7117-7123, 1995
A:Title: Purification and characterization of a naturally occurring vascular endothelial
A:Reference number: A56125; MUID:95221439
A:Accession: A56125
A:Status: preliminary; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-158 <DIS>

```

```

QY 1 CNDGEGESVPTFEESNTIMQIMRIK 24
Query Match 55.1%; Score 76; DB 2; Length 158;
Best Local Similarity 53.8%; Pred. No. 0.00013;
Matches 14; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

DB 83 CGDEGLHCVALKNTANITMQLIKIPP 108
RESULT 12
A11236
placental growth factor precursor - human
C:Species: Homo sapiens (man)
C:Date: 19-Jun-1992 #sequence_revision 19-Jun-1992 #text_change 05-Nov-1999
C:Accession: A11236
R:Magillone, D.; Gueriero, V.; Vigiiletto, G.; Dell-I-Bovl, P.; Persico, M.G.
Proc. Natl. Acad. Sci. U.S.A. 88, 9267-9271, 1991
A:Title: Isolation of a human placenta cDNA coding for a protein related to the vascu
A:Reference number: A41236; MUID:92021031
A:Accession: A41236
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-149 <MAG>
A:Cross-references: GB:X54936; NID:g35521; PIDN:CAA38698.1; PID:g35522
C:Genetics:
A:Gene: GDB:PGF
A:Cross-references: GDB:134676; OMIM:601121
A:Map position: 14q24-14q31

QY 1 CNDGEGESVPTFEESNTIMQIMRIK 24
Query Match 54.3%; Score 75; DB 2; Length 149;
Best Local Similarity 50.0%; Pred. No. 0.00017;
Matches 12; Conservative 6; Mismatches 6; Indels 0; Gaps 0;

DB 87 CGDENLHCVPETANVTMQLIKR 110
RESULT 13
JC4680
vascular endothelial growth factor-related factor 167 precursor - mouse
N:Alternate names: VRF 167 protein
C:Species: Mus musculus (house mouse)
C:Date: 10-May-1996 #sequence_revision 19-Jul-1996 #text_change 05-Nov-1999
C:Accession: JC4680
R:Rowson, S.; Lagercrantz, J.; Grimmond, S.; Sillis, G.; Nordenskjold, M.; Weber, G.
Biochem. Biophys. Res. Commun. 220, 922-928, 1996
A:Title: Characterization of the murine VEGF-related factor gene.
A:Reference number: JC4679; MUID:96183052
A:Accession: JC4680
A:Molecule type: mRNA
A:Residues: 1-188 <TCM>
A:Cross-references: GB:U43837; NID:g1314335; PIDN:AAC52553.1; PID:g1314336
C:Comment: This factor is a mitogen, that is selective for endothelial cells, and bel
ar endothelial growth factors 167 and VEGF 186.
C:Genetics:
A:Gene: vrf
A:Map position: 19
A:Introns: 137/2
F:1-21/Domain: signal sequence #status predicted <SIG>
F:22-188/Product: vascular endothelial growth factor-related factor #status predicted

QY 1 CNDGEGESVPTFEESNTIMRIK 24
Query Match 47.8%; Score 66; DB 2; Length 168;
Best Local Similarity 50.0%; Pred. No. 0.006;
Matches 12; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

```

DB 82 CPDDGLECVPTGQHGYRMQIMIQ 105

RESULT 14

vascular endothelial growth factor-related factor 186 precursor - mouse

N:Alternate names: VRF 186 protein, VEGF 186

C:Species: Mus musculus (house mouse)

C:Date: 10-May-1996 #sequence_revision 19-Jul-1996 #text_change 05-Nov-1999

C:Accession: J04679

R:Townson, S.; Lagercrantz, J.; Gilmour, S.; Silins, G.; Nordenskjoeld, M.; Weber, G.;

Biochem. Biophys. Res. Commun. 220, 922-928, 1996

A:Title: Characterization of the murine VEGF-related factor gene.

A:Reference number: J04679; MUID:96183052

A:Accession: J04679

A:Molecule type: mRNA

A:Residues: 1-207 <TOM>

A:Cross-references: GB:043836; NID:q1703480; PIDN:AAC52932.1; PID:q114334

C:Comment: This factor is a mitogen, that is selective for endothelial cells, and belongs

lar endothelial growth factors 167 and 186.

C:Genetics:

A:Gene: vrf

A:Map position: 19

C:Keywords: growth factor

F:1-21/Domain: signal sequence

F:22-207/Product: vascular endothelial growth factor related factor #status predicted <SIG>

Query Match

Best Local Similarity 47.8%; Score 66; DB 2; Length 207;

Matches 12; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTESNITMOIRIK 24

DB 82 CPDDGLECVPTGQHGYRMQIMIQ 105

1 CNDEGLSEVPTESNITMOIRIK 24

RESULT 15

CS5119

acriflavin resistance protein acrf precursor - Escherichia coli

N:Alternate names: envelope protein

C:Species: Escherichia coli

C:Date: 12-Sep-1997 #sequence_revision 17-Sep-1997 #text_change 08-Oct-1999

C:Accession: C65119; S18536; S18665

R:Blattner, F.R.; Plunkett III, G.; Bloch, C.A.; Perna, N.T.; Burland, V.; Riley, M.; Co

A.; Rose, D.J.; Mau, B.; Shao, Y.

Science 277, 1453-1462, 1997

A:Title: The complete genome sequence of Escherichia coli K-12.

A:Reference number: A64720; MUID:97426617

A:Accession: C65119

A:Status: nucleic acid sequence not shown; translation not shown

A:Molecule type: DNA

A:Residues: 1-385 <BLAT>

A:Cross-references: GB:A600405; GB:U00096; NID:q1789659; PIDN:AAC76297.1; PID:q1789665;

A:Experimental source: strain K-12, substrain MG1655

R:Klein, J.R.; Henrich, B.; Plapp, R.

Mol. Gen. Genet. 230, 230-240, 1991

A:Title: Molecular analysis and nucleotide sequence of the envC operon of Escherichia coli

A:Reference number: S18536; MUID:92079901

A:Accession: S18536

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-190, 'AL', 193, 'SLW', 197, 'KRLNRLSSSSILST', 213-312, 'T', 315-385 <KLE>

A:Cross-references: EMBL:X57948

R:Klein, J.R.; Henrich, B.; Plapp, R.

Curr. Microbiol. 21, 341-347, 1990

A:Title: Molecular cloning of the envC gene of Escherichia coli.

A:Accession: S18665

A:Status: preliminary; translation not shown

A:Molecule type: DNA

A:Residues: 1-96 <RL2>

A:Cross-references: EMBL:X57948; NID:q510827; PIDN:CAA41016.1; PID:q510829

A:Experimental source: strain K-12

C:Genetics:

A:Gene: acrf

C:Superfamily: 11poyl/biotin-binding homology

C:Keywords: cell division; lipoprotein

F:1-23/Domain: signal sequence #status predicted <SIG>

F:24-385/Product: acriflavin resistance protein acrf #status predicted <MAT>

F:60-103,175-204/Domain: 11poyl/biotin-binding homology #status atypical <LRB>

Query Match

Best Local Similarity 37.0%; Score 51; DB 2; Length 385;

Matches 9; Conservative 5; Mismatches 11; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTESNITMOIRIK 25

DB 24 CNDEGLSEVPTESNITMOIRIK 25

1 CNDEGLSEVPTESNITMOIRIK 25

Search completed: November 9, 2000, 15:32:02

Job time: 183 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:40:21 ; Search time 41.83 Seconds
(without alignments)
19.858 Million cell updates/sec

Title: US-09-266-543-7

Sequence: 1 CNDEGLSEVPEESNITMQIMKRPD 26

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues

Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_39:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	133	96.4	215	1 VEGF_HUMAN	P15652 homo sapien
2	127	92.0	190	1 VEGF_PIG	P49151 sus scrofa
3	122	88.4	214	1 VEGF_MOUSE	Q00731 mus musculu
4	121	87.7	146	1 VEGF_SHEEP	P50412 ovis aries
5	121	87.7	164	1 VEGF_CAVPO	P26617 cavia porce
6	121	87.7	190	1 VEGF_BOVIN	P15651 bos taurus
7	121	87.7	190	1 VEGF_BOVIN	P15651 bos taurus
8	96	69.6	216	1 VEGF_CHICK	P25582 gallus gall
9	84	60.9	158	1 PLGF_MOUSE	P25582 gallus gall
10	79	57.2	133	1 VEGF_ORF2	P52584 crf virus (
11	74	53.6	170	1 PLGF_HUMAN	P49763 homo sapien
12	67	48.6	188	1 VEGF_HUMAN	P49763 homo sapien
13	66	47.8	188	1 VEGF_HUMAN	P49763 homo sapien
14	51	37.0	385	1 ACRE_MOUSE	P24180 escherichia
15	46.5	33.7	578	1 VAC8_YEAST	P39968 saccharomyc
16	46	33.3	369	1 PGSI_CANPA	O02678 canis fami
17	44.5	32.2	853	1 ENV_HV122	P12487 human immun
18	44	31.9	368	1 PGSI_HUMAN	P12487 human immun
19	44	31.9	515	1 PDI_ASPO	P21810 homo sapien
20	44	31.9	972	1 POLS_IPNVN	Q00248 aspergillus
21	44	31.9	1290	1 XPCP_XENLA	P22495 infectios
22	43	31.2	260	1 PCNA_SCHPO	O03392 xenopus lae
23	43	31.2	305	1 IPK_MYCTU	O05596 mycobacteri
24	43	31.2	365	1 PCN2_DAUCA	Q00265 daucus caro
25	43	31.2	419	1 VEGC_HUMAN	P49767 homo sapien
26	43	31.2	450	1 OSTA_SCHPO	Q10176 schistosac
27	43	31.2	1038	1 CIN8_YEAST	P27893 saccharomyc
28	42	30.4	152	1 ADOM_BP3	P07693 bacterioph
29	42	30.4	249	1 YS87_CAEEL	Q09388 caenorhabdi
30	42	30.4	300	1 HAP2_KLUDA	P33768 kluyveromyc
31	42	30.4	354	1 BGAT_HUMAN	P64442 h histo-blo
32	42	30.4	379	1 P24_SOYBN	P22895 glycine max
33	42	30.4	472	1 COBQ_PYRO	O33475 pyrococcus

ALIGNMENTS

RESULT	1	STANDARD	PRT	215 AA.
VEGF_HUMAN				
ID	VEGF_HUMAN			
AC	P15652			
DT	01-APR-1990 (Rel. 14, Created)			
DT	01-APR-1990 (Rel. 14, Last sequence update)			
DT	15-JUL-1999 (Rel. 38, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).			
GN	VEGF OR VEGFA.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE: 90069608.			
RA	Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;			
RT	"Vascular endothelial growth factor is a secreted angiogenic mitogen.";			
RL	Science 246:1306-1309(1989).			
RN	[2]			
RP	SEQUENCE FROM N.A. AND PARTIAL SEQUENCE.			
RX	MEDLINE: 90069609.			
RA	Keck P.J., Hauser S.D., Krivi G., Sanzo K., Warren T., Feder J.;			
RT	Connolly D.T.;			
RL	"Vascular permeability factor, an endothelial cell mitogen related to pgf.";			
RL	Science 246:1303-1312(1989).			
RN	[3]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE: 91268072.			
RA	Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.;			
RT	Ridder J.C., Abraham J.A.;			
RL	"The human gene for vascular endothelial growth factor. Multiple protein forms are encoded through alternative exon splicing.";			
RL	J. Biol. Chem. 266:11947-11954(1991).			
RN	[4]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE: 92231879.			
RA	Weindel K., Marne D., Welch H.A.;			
RT	"AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial growth factor.";			
RL	Biochem. Biophys. Res. Commun. 183:1167-1174(1992).			
RN	[5]			
RP	PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.			
RX	MEDLINE: 90062112.			
RA	Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R.;			
RT	Siegel N., Haymer B.D., Leimgruber R., Feder J.;			
RL	"Human vascular permeability factor. Isolation from U937 cells.";			
RL	J. Biol. Chem. 264:20017-20024(1989).			
RN	[6]			
RP	SEQUENCE OF 27-41.			
RX	MEDLINE: 93145946.			
RA	Fleisch B.L., Jaeger B., Schoellmann C., Weindel K., Witting J.;			
RT	Kochs G., Marne D., Hug H., Welch H.A.;			
RL	"Synthesis and assembly of functionally active human vascular			

34	42	30.4	532	1 YK3_CAEEL	P34266 caenorhabdi
35	42	30.4	541	1 YB36_METJA	O58536 methanococ
36	42	30.4	1224	1 MSN_YEAST	P52918 saccharomyc
37	42	30.4	1514	1 YD34_YEAST	O05471 saccharomyc
38	41.5	30.1	172	1 IMDH_METKA	P50100 methanopyru
39	41.5	30.1	254	1 SAP1_SCHPO	P40847 schizosacch
40	41.5	30.1	379	1 DXR_CHLTR	O84074 chlamydia t
41	41.5	30.1	488	1 ZF92_MOUSE	O62396 mus musculu
42	41.5	30.1	515	1 STEF_YEAST	P06784 saccharomyc
43	41.5	30.1	563	1 YAS8_SCHPO	O10144 schizosacch
44	41	29.7	286	1 BYST_MOUSE	O54825 mus musculu
45	41	29.7	369	1 PGSI_BOVIN	P21809 bos taurus

RT endothelial growth factor homodimers in insect cells.";
 RL Eur. J. Biochem. 211:19-26(1993).
 RN [7]
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.
 RX MEDLINE; 97352774.
 RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,
 de Vos A.M.;
 RT "Vascular endothelial growth factor: crystal structure and functional
 mapping of the kinase domain receptor binding site.";
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).
 RN [8]
 RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.
 RX MEDLINE; 98035455.
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;
 RT "The crystal structure of vascular endothelial growth factor (VEGF)
 refined to 1.93-A resolution: multiple copy flexibility and receptor
 binding.";
 RL Structure 5:1325-1338(1997).
 RN [9]
 RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.
 RX MEDLINE; 99119204.
 RA Wiesmann C., Christinger H.W., Cochran A.G., Cunningham B.C.,
 Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;
 RT "Crystal structure of the complex between VEGF and a receptor-blocking
 peptide.";
 RL Biochemistry 37:17765-17772(1998).
 RN [10]
 RP STRUCTURE BY NMR OF 34-135.
 RX MEDLINE; 97477915.
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
 Starovasnik M.A.;
 RT "Solution structure of the heparin-binding domain of vascular
 endothelial growth factor.";
 RL Structure 6:637-648(1998).
 RN [11]
 RP STRUCTURE BY NMR OF 137-215.
 RX MEDLINE; 98298440.
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
 Starovasnik M.A.;
 RT "Solution structure of the heparin-binding domain of vascular
 endothelial growth factor.";
 RL Structure 6:637-648(1998).
 CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 PERMEABILITY.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: FOUR FORMS OF VEGF ARE PRODUCED BY
 ALTERNATIVE SPLICING OF THE SAME GENE (VEGF-121, VEGF-165,
 VEGF-189 AND VEGF-215).
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 between the Swiss Institute of Bioinformatics and the EMBL collaboration -
 the European Bioinformatics Institute. There are no restrictions on its
 use by non-profit institutions as long as its content is in no way
 modified and this statement is not removed. Usage by and for commercial
 entities requires a license agreement (See <http://www.isb-sdb.ch/announce/>
 or send an email to license@sdb-sdb.ch).
 CC -----
 CC EMBL; M32977; AAA35789.1; -;
 DR EMBL; M27281; AAA36807.1; -;
 DR EMBL; M63978; AAA36804.1; -;
 DR EMBL; M63971; AAA36804.1; JOINED.
 DR EMBL; M63972; AAA36804.1; JOINED.
 DR EMBL; M63973; AAA36804.1; JOINED.
 DR EMBL; M63974; AAA36804.1; JOINED.
 DR EMBL; M63975; AAA36804.1; JOINED.
 DR EMBL; M63976; AAA36804.1; JOINED.
 DR EMBL; M63977; AAA36804.1; JOINED.
 DR EMBL; M62568; CAA44447.1; -;

DR PIR; A34492; A34492.
 DR PIR; A40075; A40075.
 DR PIR; A40080; A40080.
 DR PIR; A40454; A40454.
 DR PIR; B40454; B40454.
 DR PIR; C40454; C40454.
 DR PIR; J01463; J01463.
 DR PIR; J01464; J01464.
 DR PIR; S17348; S17348.
 DR PDB; 1VGH; 08-APR-98.
 DR PDB; 2VGH; 08-APR-98.
 DR PDB; 1VPE; 08-APR-98.
 DR PDB; 2VPE; 29-JUL-98.
 DR PDB; 1VPE; 23-FEB-99.
 DR MIM; 192240; -;
 DR INTERPRO; IPR000072; -;
 DR PFAM; PF00341; PDGF_1; 1.
 DR PROSITE; PS00249; PDGF_1; 1.
 DR PROSITE; PS02278; PDGF_2; 1.
 KW Mitogen, growth factor; Glycoprotein; Alternative splicing; Signal;
 KW 3D-structure.
 FT CHAIN 1 26
 FT SIGNAL 27 215
 FT DISULFID 52 94
 FT DISULFID 83 128
 FT DISULFID 87 130
 FT DISULFID 77 77
 FT DISULFID 86 86
 FT CARBOHYD 101 101
 FT VARSPLIC 141 141
 FT VARSPLIC 142 165
 FT VARSPLIC 142 209
 FT VARSPLIC 215 215
 SQ SEQUENCE 215 AA; 25173 MW; 7B9759AD5871FE33 CRC64;

Query Match 96.4%; Score 133; DB 1; Length 215;
 Best Local Similarity 96.2%; Pred. No. 4.2e-14;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 QY 1 CNDGLESVPPEESNITMQRIRPH 26
 DB 87 CNDGLESVPPEESNITMQRIRPH 112
 RESULT 2
 VEGF_PIG STANDARD; PRT; 190 AA.
 AC P49151;
 DT 01-FEB-1996 (Rel. 33, Created)
 DT 01-FEB-1996 (Rel. 33, Last sequence update)
 DT 01-OCT-1996 (Rel. 34, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
 PERMEABILITY FACTOR) (VPF).
 GN VEGF.
 OS Sus scrofa (Pig).
 CC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 CC Mammalia; Euthera; Cetartiodactyla; Suina; Suidae; Sus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=HEART;
 RX MEDLINE; 95143284.
 RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;
 RT "Nucleotide sequence and expression of the porcine vascular
 endothelial growth factor.";
 RL Biochim. Biophys. Acta 1260:235-238(1995).
 CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 PERMEABILITY (BY SIMILARITY).
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 SIMILARITY).

CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@sib-sib.ch).
CC -----
CC EMBL: X81380; CAA57143.1; -
CC HSP: P15692; 2VGH.
CC INTERPRO: IPRO00072; -
CC PFAM: PF00341; PDGF_1; -
CC PROSITE: PS00249; PDGF_1; 1.
CC PROSITE: PS50278; PDGF_2; 1.
CC Mitogen: Growth factor; glycoprotein; Signal.
CC SIGNAL 1
CC CHAIN 27 190
CC DISULFID 51 93
CC DISULFID 82 127
CC DISULFID 86 129
CC DISULFID 76 76
CC DISULFID 85 85
CC CARBOHYD 100 100
CC SEQUENCE 190 AA; 22368 MW; 04D408BD7913047F CRC64;

Query Match 92.0%; Score 127; DB 1; Length 190;
Best Local Similarity 92.3%; Pred. No. 3; 3e-13;
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNTTMOIMRIKPH 26
DB 86 CNDGLESVPTEESNTTMOIMRIKPH 111

RESULT 3
VEGF_MOUSE STANDARD; PRT; 214 AA.
ID VEGF_MOUSE
AC 000731;
DT 01-APR-1993 (Rel. 25, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92274860.
RA Breier G., Albrecht U., Sterrer S., Risau W.;
RT "Expression of vascular endothelial growth factor during embryonic
RT angiogenesis and endothelial cell differentiation.";
RL Development 114:521-532(1992).
RN [2]
RP SEQUENCE FROM N.A. (VEGF-1).
RX MEDLINE: 92355593.
RA Claffey K.P., Wilkison W.O., Spiegelman B.M.;
RT "Vascular endothelial growth factor. Regulation by cell
RT differentiation and activated second messenger pathways.";
RL J. Biol. Chem. 267:16317-16322(1992).
RN [3]
RP SEQUENCE OF 1-3 FROM N.A.
RX MEDLINE: 96216498.
RA Shima D.T., Kunoki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.;
RT "The mouse gene for vascular endothelial growth factor. Genomic
RT structure, definition of the transcriptional unit, and
RT characterization of transcriptional and post-transcriptional
RT regulatory sequences.";
RL J. Biol. Chem. 271:3877-3883(1996).

CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: VEGF-1 AND VEGF-2 ARE SECRETED WHILE
CC VEGF-3 REMAINS CELL-SURFACE ASSOCIATED UNLESS RELEASED BY
CC HEPARIN.
CC -1- ALTERNATIVE PRODUCTS: THREE FORMS (VEGF-1, VEGF-2 AND VEGF-3) ARE
CC PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME GENE. THE
CC LONGEST FORM (VEGF-3, SHOWN HERE) CONTAINS A BASIC INSERT LINKED
CC TO CELL-ASSOCIATION/HEPARIN-BINDING.
CC -1- TISSUE SPECIFICITY: IN DEVELOPING EMBRYOS, EXPRESSED MAINLY IN
CC THE CHOROID PLEXUS, PARAVENTRICULAR NEUROEPITHELIUM, PLACENTA AND
CC KIDNEY GLOMERULI. ALSO FOUND IN BRONCHIAL EPITHELIUM, ADRENAL
CC GLAND AND IN SEMINIFEROUS TUBULES OF TESTIS. HIGH EXPRESSION OF
CC VEGF CONTINUES IN KIDNEY GLOMERULI AND CHOROID PLEXUS IN ADULTS.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@sib-sib.ch).
CC -----

DR EMBL: S37052; AAB22252.1; -
DR EMBL: S38083; AAB22253.1; -
DR EMBL: S38100; AAB22254.1; -
DR EMBL: M95200; AAA40547.1; -
DR EMBL: U41383; CAB35545.1; -
DR PIR: A43351; A43351.
DR HSP: P15692; 2VGH.
DR MGD: MGI:103178; VEGF.
DR INTERPRO: IPRO00072; -
DR PFAM: PF00341; PDGF_1; -
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
KM Mitogen: Growth factor; glycoprotein; Alternative splicing; Signal.
FT SIGNAL 1 26
FT CHAIN 27 214
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
FT VARSPLIC 140 140
FT VARSPLIC 141 164
FT VARSPLIC 141 208
FT CONFLICT 117 118
SQ SEQUENCE 214 AA; 25283 MW; B5540B51E4BBE17 CRC64;
GE -> ER (IN REF. 2).

Query Match 88.4%; Score 122; DB 1; Length 214;
Best Local Similarity 88.5%; Pred. No. 2; 4e-12;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDGLESVPTEESNTTMOIMRIKPH 26
DB 86 CNDGLESVPTEESNTTMOIMRIKPH 111

RESULT 4
VEGF_SHEEP STANDARD; PRT; 146 AA.
ID VEGF_SHEEP
AC P50412;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.

RP SEQUENCE OF 27-31.
RX MEDLINE: 89286596.
RA Ferrara N., Henzke W.J.;
RT "pituitary follicular cells secrete a novel heparin-binding growth
RT factor specific for vascular endothelial cells";
RL Biochem. Biophys. Res. Commun. 161:851-858(1989).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
CC DR EMBL: M32976; AAA30502.1; -
CC DR EMBL: M31836; AAA30804.1; -
CC DR EMBL: M33750; AAA30805.1; -
CC DR PIR: A33255; A33255.
CC DR PIR: A33787; A33787.
CC DR PIR: B40080; B40080.
CC DR HSSP: P15692; 2VGH.
CC DR INTERPRO: IPR000072; -
CC DR PFAM: PF00341; PDGF_1.
CC DR PROSITE: PS00249; PDGF_1; 1.
CC DR PROSITE: PS50278; PDGF_2; 1.
CC KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
CC FT CHAIN 1 26
CC FT DISULFID 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
CC FT DISULFID 51 93 BY SIMILARITY.
CC FT DISULFID 82 127 BY SIMILARITY.
CC FT DISULFID 86 129 BY SIMILARITY.
CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
CC FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
CC FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
CC FT VARSPLIC 139 183 MISSING (IN ISOFORM BETA).
CC FT VARSPLIC 184 184 R -> K (IN ISOFORM BETA).
CC SQ SEQUENCE 190 AA; 22310 MW; EDBF903E46E24789 CRC64;

Query Match 87.7%; Score 121; DB 1; Length 190;
Best Local Similarity 88.5%; Pred. No. 3.1e-12;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLESVPTESNITMQIMRIKPH 26
DB 86 CNDESLCEVPTSEFNITMQIMRIKPH 111
|||||
RESULT 7
VEGF_RAT STANDARD; PRT; 190 AA.
AC P16612;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathu; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A. AND SEQUENCE OF 27-190.
RX MEDLINE: 90207249.

RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,
RA Palasi T.M., Hope D.A., Thomas K.A.;
RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen
RT that is homologous to platelet-derived growth factor";
RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- TISSUE SPECIFICITY: EXPRESSED IN THE PITUITARY, IN BRAIN, IN
CC PARTICULARLY IN SUPRAOPTIC AND PARAVENTRICULAR NUCLEI AND THE
CC CHOROID PLEXUS. ALSO FOUND ABUNDANTLY IN THE CORPUS LUTEUM OF
CC THE OVARY AND IN KIDNEY GLOMERULI.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
CC DR EMBL: M32167; AAA41211.1; -
CC DR PIR: A35987; A35987.
CC DR HSSP: P15692; 2VGH.
CC DR INTERPRO: IPR000072; -
CC DR PFAM: PF00341; PDGF_1.
CC DR PROSITE: PS00249; PDGF_1; 1.
CC DR PROSITE: PS50278; PDGF_2; 1.
CC KW Mitogen; Growth factor; Glycoprotein; Signal.
CC FT CHAIN 1 26
CC FT DISULFID 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
CC FT DISULFID 51 93 BY SIMILARITY.
CC FT DISULFID 82 127 BY SIMILARITY.
CC FT DISULFID 86 129 BY SIMILARITY.
CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
CC FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
CC FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .).
CC SQ SEQUENCE 190 AA; 22396 MW; 589374010441R377 CRC64;

Query Match 87.7%; Score 121; DB 1; Length 190;
Best Local Similarity 84.6%; Pred. No. 3.1e-12;
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLESVPTESNITMQIMRIKPH 26
DB 86 CNDEALECVPISESNVTMQIMRIKPH 111
|||||
RESULT 8
VEGF_CHICK STANDARD; PRT; 216 AA.
AC P52582; Q91420;
DT 01-OCT-1996 (Rel. 34, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-DEC-1998 (Rel. 37, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Gallus gallus (Chicken), and
OS Coturnix coturnix japonica (Japanese quail).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES-CHICKEN; TISSUE-HEART;
RA Takahashi T.;


```

RESULT 10
VEGH_ORFN2 STANDARD: PRT: 133 AA.
AC P52584;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 15-JUL-1999 (Rel. 38, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR HOMOLOG PRECURSOR.
GN A2R.
OS Orf virus (strain NZ2) (OV NZ-2).
OC Viruses: dsDNA viruses, no RNA stage; Poxviridae; Chordopoxvirinae;
OC Parapoxvirus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 94076465.
RA Lytle D.J., Frazer K.M., Fleming S.B., Mercer A.A., Robinson A.J.;
RA "Homologs of vascular endothelial growth factor are encoded by the
RT poxvirus orf virus.";
RL J. Virol. 68:84-92(1994).
CC -1- FUNCTION: INDUCES ENDOTHELIAL PROLIFERATION.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (see http://www.isb-sib.ch/announcement/).
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: S67520; AAB29220.1; -.
DR HSSP: P15692; IYPF.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF_1;
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS0278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal.
FT SIGNAL 1 ?
FT CHAIN ? 133
FT -----
FT DISULFID 36 78
FT DISULFID 67 112 BY SIMILARITY.
FT DISULFID 71 114 BY SIMILARITY.
FT DISULFID 61 61 INTERCHAIN (BY SIMILARITY).
FT DISULFID 70 70 INTERCHAIN (BY SIMILARITY).
FT CARBOHD 85 85 N-LINKED (GLCNAC. . .) (POTENTIAL).
SQ SEQUENCE 133 AA; 14715 MW; 917C0F68830C39 CRC64;

Query Match 57.2%; Score 79; DB 1; Length 133;
Best Local Similarity 61.9%; Pred. No. 1.1e-05;
Matches 13; Conservative 5; Mismatches 3; Indels 0; Gaps 0;

Qy 1 CNDGEGSYPTESNITMOIM 21
||| || ||||| :|:|:|:
DB 71 CNDSELECYPTREYVSMELL 91

RESULT 11
PLGF_HUMAN STANDARD: PRT: 170 AA.
AC P49763;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-OCT-2000 (Rel. 40, Last annotation update)
DE PLACENTA GROWTH FACTOR PRECURSOR (PLGF-1/PLGF-2).
GN PGF OR PLGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
RN [1]

```

```

RA  SEQUENCE FROM N.A. (PLGF-1).
RP  TISSUE=PLACENTA.
RX  MEDLINE: 92021031
RA  Maglione D., Guerriero G., Vaglietto G., Dell-Bovi P., Persico M.G.;
RT  "Isolation of a human placenta cDNA coding for a protein related to
RL  the vascular permeability factor."
RN  Proc. Natl. Acad. Sci. U.S.A. 88:9267-9271(1991).
RP  [2]
RP  SEQUENCE FROM N.A. (PLGF-2).
RC  TISSUE=PLACENTA.
RX  MEDLINE: 94198032.
RA  Hauser S., Welch H.A.;
RT  "A heparin-binding form of placenta growth factor (PLGF-2) is
RT  expressed in human umbilical vein endothelial cells and in
RT  placenta."
RL  Growth Factors 9:259-268(1993).
RP  [3]
RP  SEQUENCE FROM N.A. (PLGF-2).
RX  MEDLINE: 93205407.
RA  Maglione D., Guerriero V., Vaglietto G., Ferraro M.G., Aprelikova O.,
RA  Allitalo K., del Vecchio S., Lei K.-J., Chou J.Y., Persico M.G.;
RT  "Two alternative mRNAs coding for the angiogenic factor, placenta
RT  growth factor (PLGF), are transcribed from a single gene of
RT  chromosome 14."
RN  Oncogene 8:925-931(1993).
RP  [4]
RP  CHARACTERIZATION, AND SEQUENCE OF 19-24.
RX  MEDLINE: 95014370.
RA  Park J.E., Chen H.H., Winer J., Houck K.A., Ferrara N.;
RT  "Placenta growth factor. Potentiation of vascular endothelial growth
RT  factor bioactivity, in vitro and in vivo, and high affinity binding
RT  to Flt-1 but not to Flk-1/KDR."
RN  J. Biol. Chem. 269:25646-25654(1994).
CC  -1- FUNCTION: GROWTH FACTOR OF UNKNOWN FUNCTION. BINDS TO RECEPTOR
CC  VEGFR-1 (Flt1). THE LONGER FORM (PLGF-2) CAN ALSO BIND HEPARIN. IF
CC  IS ABLE TO POTENTIATE THE ACTION OF LOW LEVELS OF VEGF.
CC  -1- SUBUNIT: HOMODIMER. DISULFIDE-LINKED.
CC  -1- SUBCELLULAR LOCATION: BOTH FORMS ARE SECRETED BUT THE LONGER FORM
CC  APPEARS TO REMAIN CELL ATTACHED UNLESS RELEASED BY HEPARIN.
CC  -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS: PLGF-1 AND PLGF-2 (SHOWN HERE);
CC  ARE PRODUCED BY ALTERNATIVE SPLICING. PLGF-1 DIFFERS FROM PLGF-2
CC  IN LACKING A 21 RESIDUES SEGMENT IN THE C-TERMINAL SECTION WHICH
CC  ACTS AS A CELL RETENTION SIGNAL.
CC  -1- TISSUE SPECIFICITY: WHILE BOTH FORMS ARE PRESENT IN MOST PLACENTAL
CC  TISSUES, THE LONGER FORM IS SPECIFIC TO EARLY (8 WEEK) PLACENTA
CC  AND ONLY THE SHORTER FORM IS FOUND IN THE COLON AND MAMMARY
CC  CARCINOMAS.
CC  -1- PTM: N-GLYCOSYLATED.
CC  -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC  -----
CC  This SWISS-PROT entry is copyright. It is produced through a collaboration
CC  between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC  the European Bioinformatics Institute. There are no restrictions on ways
CC  use by non-profit institutions as long as its content is in no way
CC  modified and this statement is not removed. Usage by and for commercial
CC  entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC  or send an email to license@sib-sib.ch).
CC  -----
DR  EMBL: X54936; CAN38698.1; -
DR  EMBL: A18411; CA001393.1; -
DR  EMBL: S72960; AAB30462.2; -
DR  HSSP: P15692; 1YPE.
DR  MIM: 601121; -
DR  INTERPRO: IPR003072; -
DR  PFM: PF00341; PDGF.1.
DR  PROSITE: PS00243; PDGF_1.1.
DR  PROSITE: PS50273; PDGF_2.1.
KV  Mitogen; Growth factor; Glycoprotein; Signal; Alternative splicing;
KV  Heparin-binding.
FT  SIGNAL 1 18
FT CHAIN 19 170 PLACENTA GROWTH FACTOR.
FT DISULFID 52 94 BY SIMILARITY.
FT DISULFID 83 128 BY SIMILARITY.

```


Thu Nov 9 15:49:57 2000

us-09-266-543-7.rsp

Page 10

```

Query Match          33.7%   Score 46.5; DB 1, length 578;
Best Local Similarity 42.3%; Pred. No. 11;
Matches    11; Conservative    4; Mismatches      6; Indels     5; Gaps    1.;
Oy         2 NDEGLSEVPTES-----NITQIMR 22
           ||| | | | | | | | | | | | | | | |
Db        550 NDTSGEHQFVEDASLFLYNIITQQILQ 575

```

Search completed: November 9, 2000, 15:40:22
Job time: 575 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:39:37 ; Search time 106.63 Seconds
(without alignments)
22.768 Million cell updates/second

Title:	US-09-266-543-7
Perfect score:	138
Sequence:	1 CNDEGLESPTEESNITMQIMRIKPH 26

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues
Total number of hits satisfying chosen parameters: 297973

```
Minimum DB seq length: 0
Maximum DB seq length: 20000000000
```

```
Post-processing:  Minimum Match 0%
                  Maximum Match 100%
                  Listing first 45 summaries
```

```

1:  sp.archaea:*
2:  sp.bacteria:*
3:  sp.fungi:*
4:  sp.human:*
5:  sp.invertebrate:*
6:  sp.mammal:*
7:  sp.mbc:*
8:  sp.organelle:*
9:  sp.phage:*
10: sp.plant:*
11: sp.podent:*
12: sp.virus:*
13: sp.vertebrate:*
14: sp.unclassified:*

```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	133	96.4	147	4	Q9UHS8	Q9uH58 homo sapien
2	133	96.4	174	4	Q9UL23	Q9uL23 homo sapien
3	133	96.4	209	4	O60720	O60720 homo sapien
4	133	96.4	254	4	O16889	O16889 homo sapien
5	127	92.0	190	6	O9XSF3	O9xsf3 canis famli
6	127	92.0	208	6	O9XSF4	O9xsf4 canis famli
7	127	92.0	214	6	O9XSF5	O9xsf5 canis famli
8	124	88.9	191	4	O75875	O75875 homo sapien
9	122	88.4	190	11	Q9QX39	Q9qx39 spalax leuc
10	121	87.7	190	6	O77643	O77643 ovis aries
11	121	87.7	214	11	O9QXG7	O9qxg7 rattus norv
12	120	87.0	68	6	O97500	O97500 oryctolagus
13	120	87.0	75	6	O18843	O18843 oryctolagus
14	117	84.8	146	6	O18843	O18843 oryctolagus
15	109	79.0	148	13	O42571	O42571 xenopus lae
16	109	79.0	194	13	O42572	O42572 xenopus lae
17	92	66.7	132	12	O9YMF3	O9ymf3 orf virus
18	92	66.7	144	13	O73822	O73822 brachydanio
19	92	66.7	188	13	O73822	O73822 brachydanio

20	87	63.0	140	11	070123
21	83	60.1	110	11	088911
22	75	55.1	158	11	063434
22	75	54.3	149	4	029658
23	71	51.4	149	6	029547
25	67	48.6	207	4	016528
26	66	47.8	188	6	029548
27	66	47.8	193	6	029549
28	66	47.8	207	11	064290
29	60	43.5	116	11	035485
30	60	43.5	150	11	054881
31	51	37.0	855	12	073344
32	50	36.2	830	10	029703
33	49	35.5	808	3	029774
34	47	34.1	262	5	026259
35	47	34.1	747	5	018151
36	47	34.1	964	5	017398
37	47	34.1	1209	5	029620
38	46.5	33.7	1340	5	029066
39	46	33.3	358	11	0297946
40	46	33.3	670	10	065749
41	46	33.3	753	4	009471
42	46	33.3	855	12	073347
43	46	33.3	1780	4	029951
44	46	33.3	1817	5	029151
45	45	32.6	111	1	026638
					070123 mus musculi
					088911 rattus norv
					063434 rattus norv
					029658 homo sapien
					029547 bos taurus
					016528 homo sapien
					029548 bos taurus
					029549 bos taurus
					064290 mus musculi
					035485 rattus norv
					054881 rattus norv
					073344 human immun
					029774 schizosacch
					029703 aradiposits
					026259 chironomus
					018151 caenorhabd1
					017398 caenorhabd1
					029620 caenorhabd1
					029066 pichia past
					0297946 mus musculi
					065749 cicier ariet
					009471 homo sapien
					073347 human immun
					029951 homo sapien
					029151 drosophila
					026638 methanobact

ALIGNMENTS

[illegible]

OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-GLMERULI;
 RA Wille C.J., Gillespie K.M., Harrison R., Mathieson P.M.,
 RA Harper S.J.;
 RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA
 RT and receptor mRNA expression in human glomeruli, and the
 RT identification of VEGF148 mRNA, a novel truncated splice variant.";
 RL Clin. Sci. 97:303-312(1999).
 DR EMBL: AF091352; AAD5345.1; -
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 SQ SEQUENCE 174 AA; 20218 MW; AE8400CA7757644 CRC64;

Query Match 96.4%; Score 133; DB 4; Length 174;
 Best Local Similarity 96.2%; Pred. No. 3.4e-13;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNTMOIRKPH 26
 DB 87 CNDEGLSVPTESNTMOIRKPH 112

RESULT 3
 ID 060720 PRELIMINARY; PRT; 209 AA.
 AC 060720;
 DT 01-AUG-1998 (TRENBLREL. 07, Created)
 DT 01-MAY-1999 (TRENBLREL. 10, Last sequence update)
 DT 01-JUN-2000 (TRENBLREL. 14, Last annotation update)
 DE VEGF183 PROTEIN PRECURSOR (VASCULAR ENDOTHELIAL GROWTH FACTOR 183).
 GN VEGF.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-KIDNEY;
 RX MEDLINE: 99096474.
 RA Lei J., Jiang A., Pei D.;
 RT "Identification and characterization of a new splicing variant of
 RT vascular endothelial growth factor: VEGF183.";
 RL Blochim. Biophys. Acta, Gene Struct. Expr. 1443:400-406(1998).
 RN [2]
 RP SEQUENCE OF 114-209 FROM N.A.
 RC TISSUE-RETINA;
 RA Jiaojing L., Roque R.S.;
 RL Submitted (MAR-1998) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AF010438; CAA09179.1; -
 DR EMBL: AF062645; AAC16730.1; -
 DR HSSP: P15692; 2VPF.
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 DR PRODOM: PD001629; -; 1.
 KW Signal.
 FT CHAIN 27 26 POTENTIAL.
 FT SIGNAL 27 26 VEGF183 PROTEIN.
 SQ SEQUENCE 209 AA; 24422 MW; F01CEACD945D6CA CRC64;

Query Match 96.4%; Score 133; DB 4; Length 209;
 Best Local Similarity 96.2%; Pred. No. 4.2e-13;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNTMOIRKPH 26
 DB 87 CNDEGLSVPTESNTMOIRKPH 112

RESULT 4
 ID 016889 PRELIMINARY; PRT; 254 AA.
 AC 016889;
 DT 01-NOV-1996 (TRENBLREL. 01, Created)
 DT 01-NOV-1998 (TRENBLREL. 08, Last sequence update)
 DT 01-JUN-2000 (TRENBLREL. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
 GN VEGF 206.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 92168017.
 RA Houck K.A., Ferrara N., Winer J., Cachianes G., Li B., Leung D.W.;
 RT "The vascular endothelial growth factor family: identification of a
 RT fourth molecular species and characterization of alternative splicing
 RT of RNA.";
 RL Mol. Endocrinol. 5:1806-1814(1991).
 DR EMBL: S85192; AAC63102.1; -
 DR EMBL: S85224; AAC63101.1; -
 DR EMBL: S85199; AAC63101.1; JOINED.
 DR EMBL: S85201; AAC63101.1; JOINED.
 DR EMBL: S85219; AAC63101.1; JOINED.
 DR EMBL: S85222; AAC63101.1; JOINED.
 DR HSSP: P15692; 2VPF.
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 FT NON_TER 1 1
 SQ SEQUENCE 254 AA; 29461 MW; 069DFE9B9723DBA8 CRC64;

Query Match 96.4%; Score 133; DB 4; Length 254;
 Best Local Similarity 96.2%; Pred. No. 5.2e-13;
 Matches 25; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNTMOIRKPH 26
 DB 109 CNDEGLSVPTESNTMOIRKPH 134

RESULT 5
 ID 09XSF3 PRELIMINARY; PRT; 190 AA.
 AC 09XSF3;
 DT 01-NOV-1999 (TRENBLREL. 12, Created)
 DT 01-NOV-1999 (TRENBLREL. 12, Last sequence update)
 DT 01-JUN-2000 (TRENBLREL. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR 164.
 GN VEGF.
 OS Canis familiaris (Dog).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-HEART;
 RA Jiaojing L., Roque R.S.;
 RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL: AF133248; AAD29682.1; -
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 SQ SEQUENCE 190 AA; 22292 MW; 2053500BC9085CE0 CRC64;

Query Match 92.0%; Score 127; DB 6; Length 190;
 Best Local Similarity 92.3%; Pred. No. 3.3e-12;
 Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNITMOIRKPH 26
||||| ||||| ||||| |||||
Db 86 CNDEGLSVPTESNITMOIRKPH 111

RESULT 6
ID O9XSFA PRELIMINARY; PRT; 208 AA.
AC O9XSFA;
DT 01-NOV-1999 (TEMBLrel. 12, Created)
DT 01-NOV-1999 (TEMBLrel. 12, Last sequence update)
DT 01-JUN-2000 (TEMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 182.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Jinsjing L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF133249; AAD29683.1; -
DR INTERPRO; IPR000072; -
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 208 AA; 24400 MW; CF77AC591F5C2BBE CRC64;

Query Match 92.0%; Score 127; DB 6; Length 208;
Best Local Similarity 92.3%; Pred. No. 3.7e-12;
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNITMOIRKPH 26
||||| ||||| ||||| |||||
Db 86 CNDEGLSVPTESNITMOIRKPH 111

RESULT 7
ID O9XSFS PRELIMINARY; PRT; 214 AA.
AC O9XSFS;
DT 01-NOV-1999 (TEMBLrel. 12, Created)
DT 01-NOV-1999 (TEMBLrel. 12, Last sequence update)
DT 01-JUN-2000 (TEMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 188.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Jinsjing L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF133250; AAD29684.1; -
DR INTERPRO; IPR000072; -
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 214 AA; 25151 MW; 2269981AFBC6058 CRC64;

Query Match 92.0%; Score 127; DB 6; Length 214;
Best Local Similarity 92.3%; Pred. No. 3.7e-12;
Matches 24; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNITMOIRKPH 26
||||| ||||| ||||| |||||
Db 86 CNDEGLSVPTESNITMOIRKPH 111

RESULT 8
075875

ID 075875 PRELIMINARY; PRT; 191 AA.

AC 075875;
DT 01-NOV-1998 (TEMBLrel. 08, Created)
DT 01-NOV-1998 (TEMBLrel. 08, Last sequence update)
DT 01-JUN-2000 (TEMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=BREAST;
RX MEDLINE; 98119755.
RA Claffey K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,
RA Abrams K.R., Lee S.W., Detmar M.;
RT "Identification of a human VEGF/VEGF 3' untranslated region mediating
RT hypoxia-induced mRNA stability."
RL Mol. Biol. Cell 9:469-481(1998).
DR EMBL; AF022375; AAC63143.1; -
DR HSSP; P15692; 1VPP.
DR INTERPRO; IPR000072; -
DR PFAM; PF00341; PDGF; 1.
DR PRODOM; PD001629; -; 1.
SQ SEQUENCE 191 AA; 22320 MW; B5E435838C72715B CRC64;

Query Match 89.9%; Score 124; DB 4; Length 191;
Best Local Similarity 96.0%; Pred. No. 9.7e-12;
Matches 24; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 NDEGLSVPTESNITMOIRKPH 26
||||| ||||| ||||| |||||
Db 88 NDEGLSVPTESNITMOIRKPH 112

RESULT 9
ID O9OX39 PRELIMINARY; PRT; 190 AA.
AC O9OX39;
DT 01-MAY-2000 (TEMBLrel. 13, Created)
DT 01-MAY-2000 (TEMBLrel. 13, Last sequence update)
DT 01-JUN-2000 (TEMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;
OC Spalax.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 99313148.
RA Avivi A., Resnick M.B., Nevo E., Joel A., Levy A.P.;
RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax
RT ehrenbergi: the role of vascular endothelial growth factor."
RL FEBS Lett. 452:133-140(1999).
DR EMBL; AF186236; AAD56245.1; -
DR INTERPRO; IPR000072; -
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22488 MW; 2228383BC65F0BFE CRC64;

Query Match 88.4%; Score 122; DB 11; Length 190;
Best Local Similarity 88.5%; Pred. No. 2e-11;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNITMOIRKPH 26
||||| ||||| ||||| |||||
Db 86 CNDEGLSVPTESNITMOIRKPH 111

RESULT 10
077643

ID 077643 PRELIMINARY; PRT: 190 AA.
AC 077643;
DT 01-NOV-1998 (TREMBLrel. 08, Created)
DT 01-NOV-1998 (TREMBLrel. 08, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-COLUMBIA-RAMBOUTLIER,
RA Cheung C.Y., Brace R.A.;
RT "Ovine vascular endothelial growth factor: Nucleotide sequence and
expression in fetal tissues."
RL Growth factors 0:0-0(1998).
DR EMBL; AF071015; AAC33608.1; -.
DR HSSP; P15692; 2VGH.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR PRODOM; PD001629; -; 1.
SQ SEQUENCE 190 AA; 22342 MW; 0D5E3B3E5C3E739 CRC64;

Query Match 87.7%; Score 121; DB 6; Length 190;
Best Local Similarity 88.5%; Pred. No. 2.8e-11;
Matches 23; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITMQIMRIKPH 26
|||||
DB 86 CNDESLCEVPTSEFNVTMQIMRIKPH 111

RESULT 11
090XG7 PRELIMINARY; PRT: 214 AA.
AC 090XG7;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR A188.
GN Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A.
RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;
RT "Developmental expression of vascular endothelial growth factor-A
RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat
RT masseter muscle."
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF215725; AAF19211.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 214 AA; 25239 MW; 60FB876F5304946 CRC64;

Query Match 87.7%; Score 121; DB 11; Length 214;
Best Local Similarity 84.6%; Pred. No. 3.2e-11;
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITMQIMRIKPH 26
|||||
DB 86 CNDEALECVPTSEFNVTMQIMRIKPH 111

RESULT 12
097500 PRELIMINARY; PRT: 68 AA.

AC 097500;
DT 01-MAY-1999 (TREMBLrel. 10, Created)
DT 01-MAY-1999 (TREMBLrel. 10, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
GN VEGF.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
RN [1]
RP SEQUENCE FROM N.A.
RA Inoue K., Kawabe Y., Kodama T.;
RT "Rabbit VEGF cDNA, partial."
RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB020216; BA036949.1; -.
DR HSSP; P15692; 1VPP.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR NON_TER 1.
FT NON_TER 1.
SQ SEQUENCE 68 AA; 7819 MW; 68763861E98DE0 CRC64;

Query Match 87.0%; Score 120; DB 6; Length 68;
Best Local Similarity 84.6%; Pred. No. 1.3e-11;
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITMQIMRIKPH 26
|||||
DB 41 CNDESLCEVPTSEFNVTMQIMRIKPH 66

RESULT 13
018843 PRELIMINARY; PRT: 75 AA.
AC 018843;
DT 01-JAN-1998 (TREMBLrel. 05, Created)
DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
GN VEGF.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-WHITE NEW ZEALAND; TISSUE-SKELETAL MUSCLE;
RX MEDLINE; 98191144.
RA Skorjanc D., Jaschinski F., Heine G., Pette D.;
RT "Sequential increases in capillarization and mitochondrial enzymes in
RT low-frequency-stimulated rabbit muscle."
RL Am. J. Physiol. 274:0-0(1998).
DR EMBL; AF022179; AAC15469.1; -.
DR HSSP; P15692; 1VPP.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR NON_TER 1.
FT NON_TER 1.
SQ SEQUENCE 75 AA; 8720 MW; DDCE2C5B29E69359 CRC64;

Query Match 87.0%; Score 120; DB 6; Length 75;
Best Local Similarity 84.6%; Pred. No. 1.5e-11;
Matches 22; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTESNITMQIMRIKPH 26
|||||
DB 29 CNDESLCEVPTSEFNVTMQIMRIKPH 54

RESULT 14

090XG6
 ID 090XG6 PRELIMINARY; PRT; 146 AA.
 AC 090XG6;
 DT 01-MAY-2000 (TREMBLrel. 13, Created)
 DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
 DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR-A120.
 OS Rattus norvegicus (Rat).
 CC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Rattus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Ishii H., Arakawa T., Okayama M., Oota I., Takuma T., Inomata K.;
 RT "Developmental expression of vascular endothelial growth factor-A
 RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat
 RT masseter muscle.";
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF215726; AAF19212.1; -.
 DR INTERPRO: IPR000072; -.
 DR PFM; PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 SO SEQUENCE 146 AA; 17161 MW; AF92979C38EF532A CRC64;

Query Match 84.8%; Score 117; DB 11; Length 146;
 Best Local Similarity 84.6%; Pred. No. 9e-11;
 Matches 22; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNTQIMIKRPH 26
 |||||
 DB 86 CNDEALCEVPTESNATQIMIKRPH 111

RESULT 15
 ID 042571 PRELIMINARY; PRT; 148 AA.
 AC 042571;
 DT 01-JAN-1998 (TREMBLrel. 05, Created)
 DT 01-JAN-1998 (TREMBLrel. 05, Last sequence update)
 DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR 122.
 GN VEGF.
 OS Xenopus laevis (African clawed frog).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;
 CC Xenopodinae; Xenopus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;
 RL Submitted (JUN-1997) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF008593; AAB63679.1; -.
 DR HSSP; P15692; 1YPP.
 DR INTERPRO: IPR000072; -.
 DR PFM; PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 DR PRODOM: PD001629; -; 1.
 SO SEQUENCE 148 AA; 17234 MW; 4AD153CA2F8B1E95 CRC64;

Query Match 79.0%; Score 109; DB 13; Length 148;
 Best Local Similarity 80.8%; Pred. No. 1.6e-09;
 Matches 21; Conservative 1; Mismatches 4; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTESNTQIMIKRPH 26
 |||||
 DB 87 CNDESLCEVPTESNTQIMIKRPH 112

Search completed: November 9, 2000, 15:39:38
 Job time: 615 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:32:02 ; Search time 72.39 Seconds
(without alignments)
11.396 Million cell updates/sec

Title: US-09-266-543-8

Perfect score: 71

Sequence: 1 CNDEGLESVPTPE 13

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :

1: PIR_65:*
2: PIR1:*
3: PIR2:*
4: PIR3:*
5: PIR4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	66	93.0	190	2	S52130
2	66	93.0	232	2	A41551
3	60	84.5	120	2	A33787
4	60	84.5	133	2	B49530
5	60	84.5	146	2	S57956
6	60	84.5	190	2	B40080
7	55	77.5	190	2	B44881
8	55	77.5	190	2	A35887
9	55	77.5	214	2	A44881
10	47	66.2	128	2	I51295
11	45	63.4	188	2	JC4680
12	45	63.4	207	2	JC4679
13	44	62.0	251	2	T08315
14	43	60.6	358	1	BGRUN
15	41	57.7	464	2	T48339
16	41	57.7	1121	2	JQ1631
17	41	57.7	1736	2	T05174
18	40	56.3	173	2	S20003
19	40	56.3	250	2	T22786
20	40	56.3	360	2	S06280
21	40	56.3	369	2	S20811
22	40	56.3	369	2	S32559
23	40	56.3	369	2	S32793
24	40	56.3	606	2	T31557
25	40	56.3	645	2	S51880
26	40	56.3	1006	2	T41104
27	39	54.9	149	2	T44136
28	39	54.9	340	2	T30121
29	39	54.9	354	2	S29145

30	39	54.9	357	2	S24317	decorin precursor
31	39	54.9	800	2	T25140	hypothetical prote
32	38	53.5	152	1	DABPT3	adenosylmethionine
33	38	53.5	422	2	G75131	malate oxidoreduct
34	38	53.5	772	2	S62481	hypothetical prote
35	37	52.1	83	1	BNRT1	brain neuron cytop
36	37	52.1	137	2	F72608	hypothetical prote
37	37	52.1	295	2	T34572	hypothetical prote
38	37	52.1	359	1	NBHUC8	decorin precursor
39	37	52.1	360	2	I47020	decorin - rabbit
40	37	52.1	666	2	T35864	hypothetical prote
41	37	52.1	758	2	T10614	hypothetical prote
42	37	52.1	789	2	T01321	probable isoamylas
43	37	52.1	818	2	T02231	probable isoamylas
44	37	52.1	1212	2	T44051	hypothetical prote
45	37	52.1	1212	2	T44236	hypothetical prote

ALIGNMENTS

RESULT 1
S52130
vascular endothelial growth factor - pig
C:Species: Sus scrofa domestica (domestic pig)
C:Date: 14-Jul-1995 #sequence_revision 21-Jul-1995 #text_change 05-Nov-1999
C:Accession: S52130
R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.
Biochim. Biophys. Acta 1260, 235-238, 1995
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growt
A:Reference number: S52130; M0ID:95143284
A:Accession: S52130
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <SHA>
A:Cross-references: GB:X81380; NID:9587559; PIDN:CA57143.1; PID:9587560

Query Match 93.0% Score 66; DB 2; Length 190;
Best Local Similarity 92.3%; Pred. No. 0.00022;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLESVPTPE 13
DB 86 CNDEGLESVPTPE 98
|||||
A:Accession: A41551
A:Title: The vascular endothelial growth factor family: identification of a fourth mo
N:Contains: vascular endothelial growth factor 121 (VEGF 121); VEGF 165; VEGF 189; VE
C:Species: Homo sapiens (man)
C:Date: 28-Aug-1992 #sequence_revision 28-Aug-1992 #text_change 05-Nov-1999
C:Accession: A41551; A41551; B41551; A40454; B40079; A40080; JQ1463;
R:Houck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Li, B.; Leung, D.W.
Mol. Endocrinol. 5, 1806-1814, 1991
A:Title: The vascular endothelial growth factor family: identification of a fourth mo
A:Reference number: A41551; M0ID:9218017
A:Accession: A41551
A:Molecule type: mRNA
A:Residues: 1-232 <HOUI>
A:Cross-references: GB:S85192; NID:g246155; PID:g246156
A:Accession: A41551
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-140, N, 183-232 <HOUI>
A:Status: nucleic acid sequence not shown; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 114, 227-232 <HOUI>
R:Ritscher, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fildes, J.C.;
J. Biol. Chem. 266, 11947-11954, 1991

A:Title: The human gene for vascular endothelial growth factor. Multiple protein forms
 A:Reference number: A40454; MUID:91268072
 A:Accession: A40454
 A:Molecule type: DNA
 A:Residues: 1-165,183-232 <TI1>
 A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63976; GB:M63977
 A:Accession: B40454
 A:Molecule type: DNA
 A:Residues: 1-140, 'N', 183-232 <TI2>
 A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63977; GB:M63978
 A:Accession: C40454
 A:Molecule type: DNA
 A:Residues: 1-141,227-232 <TI3>
 A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978
 R:Reck, P.J.; Hauser, S.D.; Kiviti, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.T.
 Science 246, 1309-1312, 1999
 A:Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF.
 A:Reference number: A40079; MUID:90069609
 A:Accession: A40079
 A:Status: not compared with conceptual translation
 A:Molecule type: mRNA
 A:Residues: 1165,183-232 <KEC>
 A:Cross-references: GB:M2781; NID:9340300; PIDN:AAA36807.1; PID:9340301
 R:Leung, D.W.; Cachanes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
 Science 246, 1306-1309, 1999
 A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
 A:Reference number: A40080; MUID:90069608
 A:Accession: A40080
 A:Status: not compared with conceptual translation
 A:Molecule type: mRNA
 A:Residues: 1-140, 'N', 183-232 <LEU>
 A:Cross-references: GB:M32977; NID:9181970; PIDN:AAA3789.1; PID:9181971
 R:Weinzel, K.; Marne, D.; Welch, H.A.
 Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992
 A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial.
 A:Reference number: JQ1463; MUID:92231879
 A:Accession: JQ1463
 A:Molecule type: mRNA
 A:Residues: 1-140, 'N', 183-232 <WEI>
 A:Cross-references: EMBL:X82568; NID:937658; PIDN:CMA4447.1; PID:937659
 A:Experimental source: AIDS-Kaposi's sarcoma cell
 A:Accession: JQ1464
 A:Molecule type: mRNA
 A:Residues: 1-140, 'N', 227-232 <WEZ>
 A:Experimental source: AIDS-Kaposi's sarcoma cell
 R:Connolly, D.T.; Olander, J.V.; Hewelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; Hay
 J. Biol. Chem. 264, 20017-20024, 1989
 A:Title: Human vascular permeability factor. Isolation from U937 cells.
 A:Reference number: A34492; MUID:90062112
 A:Accession: A34492
 A:Molecule type: protein
 A:Residues: 27-36,43-49, 'R', 72-76, 'Q', 78-81,59-71 <CON>
 C:Comment: The most common of several alternatively spliced forms is VEGF 165.
 C:Genetics:
 A:Gene: GDB:VEGF
 A:Cross-references: GDB:132244; OMIM:192240
 A:Map position: 6p21-6p12
 C:Function:
 A:Description: Promotes fluid and protein leakage from blood vessels
 C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pro
 F:1-232/Product: vascular endothelial growth factor 206 precursor #status predicted <Y20
 F:1-165,183-232/Product: vascular endothelial growth factor 189 precursor #status predic
 F:1-141,227-232/Product: vascular endothelial growth factor 121 precursor #status predic
 F:1-26/Domain: signal sequence #status predicted <SIG>
 F:101/Binding site: carbonyl (Asn) (covalent) #status predicted

DB 87 CNDEGLECVPTTE 99
 RESULT 3
 A33787
 Vascular endothelial growth factor (version 1) - bovine
 C:Species: Bos primigenius taurus (cattle)
 C:Date: 16-Mar-1990 #sequence_revision 16-Mar-1990 #text_change 05-Nov-1999
 C:Accession: A33787
 R:Ritscher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Cr
 Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
 A:Title: Vascular endothelial growth factor: a new member of the platelet-derived gro
 A:Reference number: A33787; MUID:90121225
 A:Accession: A33787
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-120 <TIS>
 A:Cross-references: GB:M3750; NID:9163810; PIDN:AAA30805.1; PID:9163811
 C:Keywords: alternative splicing

Query Match 84.5%; Score 60; DB 2; Length 120;
 Best Local Similarity 84.6%; Pred. No. 0.0016;
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

DB 60 CNDEGLECVPTTE 72
 RESULT 4
 B49530
 Vascular endothelial growth factor homolog A2R, 14.7K - Orf virus
 C:Species: Orf virus
 C:Date: 07-Apr-1994 #sequence_revision 18-Nov-1994 #text_change 08-Oct-1999
 C:Accession: B49530
 R:Lyttle, D.J.; Fraser, K.M.; Fleming, S.B.; Mercer, A.A.; Robinson, A.J.
 J. Virol. 68, 84-92, 1994
 A:Title: Homologs of vascular endothelial growth factor are encoded by the poxvirus o
 A:Reference number: A49530; MUID:94076465
 A:Accession: B49530
 A:Contents: NZ2
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 1-133 <LYT>
 A:Cross-references: GB:S67520; NID:9456897; PIDN:AA29220.1; PID:9456899
 A:Note: sequence inconsistent with nucleotide translation
 A:Note: sequence extracted from NCBI backbone (NCBIN:141420, NCBI:141425)

Query Match 84.5%; Score 60; DB 2; Length 133;
 Best Local Similarity 84.6%; Pred. No. 0.0018;
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

DB 71 CNDEGLECVPTTE 83
 RESULT 5
 S57956
 ovine vascular endothelial growth factor - sheep
 C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
 C:Date: 13-Jan-1996 #sequence_revision 01-Mar-1996 #text_change 05-Nov-1999
 C:Accession: S57956
 R:Redmer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.
 submitted to the EMBL Data Library, July 1995
 A:Reference number: S57956
 A:Accession: S57956
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-146 <RED>
 A:Cross-references: EMBL:X89506; NID:9899350; PIDN:CMA61677.1; PID:9899351

Query Match 84.5%; Score 60; DB 2; Length 146;
Best Local Similarity 84.6%; Pred. No. 0.0019;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTTE 13
|||||
DB 86 CNDESLCVPTEE 98

RESULT 6
B40080
vascular endothelial growth factor precursor (version 2) - bovine
C:Species: Bos primigenius taurus (cattle)
C:Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 05-Nov-1999
A:Accession: B40080; B33787; A33255
R:Lenig, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A:Reference number: A40080; MUID:90069608
A:Accession: B40080
A:Molecule type: mRNA
A:Residues: 1-190 <LEU>
A:Cross-references: GB:M32976; NID:9163006; PIDN:AAA30502.1; PID:9163007
R:Ritche, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crist
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth
A:Reference number: A33787; MUID:90121225
A:Accession: B33787
A:Molecule type: mRNA
A:Residues: 27-190 <TIS>
A:Cross-references: GB:M31836; NID:9163808; PIDN:AAA30804.1; PID:9163809
R:Ferrara, N.; Henzel, W.J.
Biochem. Biophys. Res. Commun. 161, 851-858, 1989
A:Title: Pituitary follicular cells secrete a novel heparin-binding growth factor specific
A:Reference number: A33255; MUID:89286596
A:Accession: A33255
A:Molecule type: protein
A:Residues: 27-31 <FER>
C:Keywords: alternative splicing; glycoprotein
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>
F:100/Binding site: carbohydrate (asn) (covalent) #status predicted

Query Match 84.5%; Score 60; DB 2; Length 190;
Best Local Similarity 84.6%; Pred. No. 0.0025;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTTE 13
|||||
DB 86 CNDESLCVPTEE 98

RESULT 7
B44881
vascular endothelial growth factor-1 precursor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence_revision 03-Feb-1994 #text_change 05-Nov-1999
A:Accession: B44881; A43351; A61029
R:Breiter, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860
A:Accession: B44881
A:Molecule type: mRNA
A:Residues: 1-190 <BRE>
A:Cross-references: GB:S38083; NID:9249858; PIDN:AA822253.1; PID:9249859
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBID:107623)
R:Laflay, K.P.; Malkison, W.O.; Spiegelman, B.M.
J. Biol. Chem. 267, 16317-16322, 1992

A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and a
A:Reference number: A43351; MUID:92355593
A:Accession: A43351
A:Molecule type: mRNA
A:Residues: 1-116, 119-190 <CLA>
A:Cross-references: GB:M95200; NID:9202350; PIDN:AAA40547.1; PID:9202351
A:Note: sequence extracted from NCBI backbone (NCBIN:110665, NCBIF:110675)
R:Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.
Growth Factors 4, 53-59, 1990
A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelial
A:Reference number: A61029; MUID:91197543
A:Accession: A61029
A:Molecule type: protein
A:Residues: 27-38 <ROS>
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein;

Query Match 77.5%; Score 55; DB 2; Length 190;
Best Local Similarity 76.9%; Pred. No. 0.02;
Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTTE 13
|||||
DB 86 CNDEALCVPTEE 98

RESULT 8
A35987
glioma-derived vascular endothelial cell growth factor - rat
C:Species: Rattus norvegicus (Norway rat)
C:Date: 16-Nov-1990 #sequence_revision 16-Nov-1990 #text_change 05-Nov-1999
A:Accession: A35987
R:Conn, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Palist, T.M.; Ho
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990
A:Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is
A:Reference number: A35987; MUID:90207249
A:Accession: A35987
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <CON>
A:Cross-references: GB:M32167; NID:9204287; PIDN:AAA41211.1; PID:9204288

Query Match 77.5%; Score 55; DB 2; Length 190;
Best Local Similarity 76.9%; Pred. No. 0.02;
Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDEGLSVPTTE 13
|||||
DB 86 CNDEALCVPTEE 98

RESULT 9
A44881
vascular endothelial growth factor-2; vascular permeability factor
N:Contains: vascular endothelial growth factor-2; vascular permeability factor
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence_revision 03-Feb-1994 #text_change 08-Oct-1999
A:Accession: A44881; C44881; A60932; S52136
R:Breiter, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860
A:Accession: A44881
A:Molecule type: mRNA
A:Residues: 1-214 <BRE>
A:Cross-references: GB:S37052; NID:9249856; PIDN:AA822252.1; PID:9249857
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBIF:104678)
A:Accession: C44881
A:Molecule type: mRNA
A:Residues: 1-140, 209-214 <BR2>
A:Cross-references: GB:S38100; NID:9249860; PIDN:AA822254.1; PID:9249861

A>Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBIPI:107625)
R:Clauss, M.; Gerlich, M.; Gerlich, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan, Y.C.
J. Exp. Med. 172, 1535-1545, 1990
A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces endothelial
A:Reference number: A60932; MUID:91079755
A:Accession: A60932
A:Molecule type: protein
A:Residues: 27-33 <GLA>
R:Sugihara, T.; Kaul, S.C.; Mitsui, Y.; Madhwa, R.
Biochim. Biophys. Acta 1224, 365-370, 1994
A:Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous im
A:Reference number: S52136; MUID:95101726
A:Accession: S52136
A:Status: preliminary
A:Molecule type: protein
A:Residues: 27-46 <SUG>
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.
C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodimer;
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match 77.5%; Score 55; DB 2; Length 214;
Best Local Similarity 76.9%; Pred. No. 0.022;
Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTE 13
| | | | | | | | | |
Db 86 CNDGLESVPTE 98

RESULT 10
IT1295
vascular endothelial growth factor - quail (fragment)
C:Species: Phasianidae gen. sp. (quail)
C:Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 28-Feb-1997
C:Accession: I51295
R:Flamme, I.; Breier, G.; Risau, W.
Dev. Biol. 169, 699-712, 1995
A:Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (Flk-1) are expre
A:Reference number: I51295; MUID:95301109
A:Accession: I51295
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-128 <FLA>
A:Cross-References: GB:S78343; NID:9999147; PID:9999148
C:Genetics:
A:Gene: VEGF

Query Match 66.2%; Score 47; DB 2; Length 128;
Best Local Similarity 66.7%; Pred. No. 0.35;
Matches 8; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTE 12
| | | | | | | | | |
Db 28 CNDGLESVPTE 39

RESULT 11
JC4680
vascular endothelial growth factor-related factor 167 precursor - mouse
N:Alternate names: VRF 167 protein
C:Species: Mus musculus (house mouse)
C:Date: 10-May-1996 #sequence_revision 19-Jul-1996 #text_change 05-Nov-1999
C:Accession: JC4680
R:Townson, S.; Lagercrantz, J.; Grimond, S.; Sillins, G.; Nordenskjöld, M.; Weber, G.;
Biochem. Biophys. Res. Commun. 220, 922-928, 1996
A:Title: Characterization of the murine VEGF-related factor gene.
A:Reference number: JC4679; MUID:96183052
A:Accession: JC4680
A:Molecule type: mRNA
A:Residues: 1-188 <TON>

A:Cross-References: GB:U43837; NID:91314335; PIDN:AAC52553.1; PID:91314336
C:Comment: This factor is a mitogen, that is selective for endothelial cells, and bel
at endothelial growth factors 167 and VEGF 186.
C:Genetics:
A:Gene: vrf
A:Map position: 19
A:Introns: 137/2
F:1-21/Domain: signal sequence #status predicted <SIG>
F:22-188/Product: vascular endothelial growth factor-related factor #status predicted

Query Match 63.4%; Score 45; DB 2; Length 188;
Best Local Similarity 72.7%; Pred. No. 1.2;
Matches 8; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDGLESVPTE 11
| | | | | | | | | |
Db 82 CPDDGLECVPT 92

RESULT 12
JC4679
vascular endothelial growth factor-related factor 186 precursor - mouse
N:Alternate names: VRF 186 protein, VEGF 186
C:Species: Mus musculus (house mouse)
C:Date: 10-May-1996 #sequence_revision 19-Jul-1996 #text_change 05-Nov-1999
C:Accession: JC4679
R:Townson, S.; Lagercrantz, J.; Grimond, S.; Sillins, G.; Nordenskjöld, M.; Weber, G
Biochem. Biophys. Res. Commun. 220, 922-928, 1996
A:Title: Characterization of the murine VEGF-related factor gene.
A:Reference number: JC4679; MUID:96183052
A:Accession: JC4679
A:Molecule type: mRNA
A:Residues: 1-207 <TON>
A:Cross-References: GB:U43836; NID:91703480; PIDN:AAC52932.1; PID:91314334
C:Comment: This factor is a mitogen, that is selective for endothelial cells, and bel
lar endothelial growth factors 167 and 186.
C:Genetics:
A:Gene: vrf
A:Map position: 19
C:Keywords: growth factor
F:1-21/Domain: signal sequence #status predicted <SIG>
F:22-207/Product: vascular endothelial growth factor related factor #status predicted

Query Match 63.4%; Score 45; DB 2; Length 207;
Best Local Similarity 72.7%; Pred. No. 1.3;
Matches 8; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDGLESVPTE 11
| | | | | | | | | |
Db 82 CPDDGLECVPT 92

RESULT 13
T08315
hypothetical protein H1185 [accepted] - Halobacterium sp. (strain NRC-1) plasmid pNRC
C:Species: Halobacterium sp.
A:Variety: strain NRC-1
C:Date: 11-Jun-1999 #sequence_revision 11-Jun-1999 #text_change 31-Jan-2000
C:Accession: T08315
R:Ng, W.V.; Clufo, S.A.; Smith, T.M.; Bungarner, R.E.; Baskin, D.; Faust, J.; Hall, S
Genome Res. 8, 1131-1141, 1998
A:Title: Snapshot of a large dynamic replicon in a halophilic Archaeon: megaplasmid o
A:Reference number: T16408; MUID:99063795
A:Accession: T08315
A:Status: translated from GB/EMBL/DBJ
A:Molecule type: DNA
A:Residues: 1-251 <DAS>
A:Cross-References: EMBL:AF016485; NID:92822278; PID:92822376; HALOSP:H1185
A:Experimental source: strain NRC-1
C:Genetics:
A:Gene: HALOSP:H1185

A:Genome: Plasmid pNRC100
C:Superfamily: Halobacterium plasmid pNRC100 hypothetical protein H1185

Query Match 62.0%; Score 44; DB 2; Length 251;
Best Local Similarity 70.0%; Pred. No. 2.4;
Matches 7; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVP 10
||| |||:
DB 96 CNDGLESVP 105

RESULT 14

biglycan precursor - human

N:Alternate names: cartilage proteoglycan I; dermatan sulfate proteoglycan I (DS-PG1); P

C:Species: Homo sapiens (man)

C>Date: 21-Apr-1992 #sequence, revision 26-May-1995 #text, change 28-Jan-2000

C:Accession: A40757; I38706; A32458; S14349; S05639; A28457

R:Fishers, L.W.; Heegard, A.M.; Vetter, U.; Vogel, W.; Just, W.; Termine, J.D.; Young, M.

J. Biol. Chem. 266, 14371-14377, 1991

A:Title: Human biglycan gene. Putative promoter, intron-exon junctions, and chromosomal

A:Reference number: A40757; MUID:91317791

A:Accession: A40757

A:Molecule type: DNA

A:Residues: 1-368 <F151>

A:Cross-references: GB:M65151; NID:g179428; GB:M65152; NID:g179429; GB:M65153; NID:g1794

A>Note: the translated sequence in GenBank entry H0MBG3, release 113.0, (PIDN:AAA52287,

d not the DNA) and 26 residues inserted after residue 80 (apparently from a misread split

R:Just, W.; Rau, W.; Muller, R.; Geerrens, C.; Vogel, W.

Hum. Mol. Genet. 3, 2268, 1994

A:Title: Dinucleotide repeat polymorphism at the human biglycan (BGN) locus.

A:Reference number: 138706; MUID:95187185

A:Accession: 138706

A>Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 361-368 <JUS>

A:Cross-references: EMBL:U11686; NID:9607862; PIDN:AA50117.1; PID:9613663

R:Fishers, L.W.; Termine, J.D.; Young, M.F.

J. Biol. Chem. 264, 4571-4576, 1989

A:Title: Deduced protein sequence of bone small proteoglycan I (Biglycan) shows homology

A:Reference number: A32458; MUID:89174714

A:Accession: A32458

A:Molecule type: mRNA

A:Residues: 1-138, 'NV', 141-162, 'DV', 165-368 <F152>

A:Cross-references: GB:U04599; NID:g184339

A>Note: parts of this sequence, including the amino end of the mature protein, were dete

A>Note: the translated sequence in GenBank entry H0MHP1, release 113.0, (PIDN:AAA36009,

R:Stoecker, G.; Meyer, H.E.; Magener, C.; Grelling, H.

Biochem. J. 274, 415-420, 1991

A:Title: Purification and N-terminal amino acid sequence of a chondroitin sulphate/derma

A:Reference number: S14349; MUID:91174749

A:Accession: S14349

A:Molecule type: protein

A:Residues: 38-57 <STO>

A:Experimental source: aorta

R:Roughley, P.J.; White, R.J.

Biochem. J. 262, 823-827, 1989

A:Title: Dermatan sulphate proteoglycans of human articular cartilage. The properties of

A:Reference number: S05639; MUID:90073579

A:Accession: S05639

A:Molecule type: protein

A:Residues: 38-41, 'X', 43-46, 'X', 48-57 <ROU>

R:Fishers, L.W.; Hawkins, G.R.; Tuross, N.; Termine, J.D.

J. Biol. Chem. 262, 9702-9708, 1987

A:Title: Purification and partial characterization of small proteoglycans I and II, bone

A:Reference number: A92656; MUID:87250639

A:Accession: A28457

A:Molecule type: protein

A:Residues: 38-41, 'X', 43-62, 'X', 64-66 <F153>

A:Experimental source: bone

C:Genetics:

A:Gene: GDB:BCN
A:Cross-references: GDB:119727; OMIM:301870

A:Map position: xq28-xq28

A:Introns: 80/1; 117/3; 189/1; 226/1; 257/2; 303/3

C:Superfamily: decorin; leucine-rich alpha-2-glycoprotein repeat homology; proteoglyc

C:Keywords: chondroitin sulfate proteoglycan; dermatan sulfate; duplication; extracel

F:1-16/Domain: signal sequence #status predicted <SIG>

F:17-37/Domain: propeptide #status predicted <PRO>

F:38-368/Product: biglycan #status predicted <P>

F:57-81/Domain: proteoglycan amino-terminal homology <PAH>

F:91-114/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR1>

F:115-138/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR2>

F:139-159/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR3>

F:160-183/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR4>

F:184-207/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR5>

F:209-229/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR6>

F:230-253/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR7>

F:254-277/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR8>

F:278-300/Domain: leucine-rich alpha-2-glycoprotein repeat homology <LRR9>

F:301-315/Domain: leucine-rich alpha-2-glycoprotein repeat homology #status atypical

F:316-368/Domain: proteoglycan carboxyl-terminal homology <PCH>

F:44,47/Binding site: dermatan sulfate (Ser) (covalent) #status experimental

F:180,198/Binding site: dermatan sulfate (Ser) (covalent) #status predicted

F:270,311/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match 60.6%; Score 43; DB 1; Length 368;
Best Local Similarity 66.7%; Pred. No. 5.4;
Matches 8; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDGLESVP 12
||| |||:
DB 76 CSDGLKSPKE 87

RESULT 15

T48339

hypothetical protein F15A17.210 - Arabidopsis thaliana

C:Species: Arabidopsis thaliana (mouse-ear cress)

C>Date: 20-Apr-2000 #sequence, revision 20-Apr-2000 #text, change 20-Apr-2000

C:Accession: T48339

R:Bevan, M.; Terry, N.; Ardiles, W.; Buysaert, C.; Dasseville, R.; De Clerck, R.;

ewes, H.W.; Rudd, S.; Lemcke, K.; Mayer, K.F.X.

Submitted to the Protein Sequence Database, April 2000

A:Reference number: 224491

A:Accession: T48339

A>Status: preliminary

A:Molecule type: DNA

A:Residues: 1-464 <BEV>

A:Cross-references: EMBL:AL163002

A:Experimental source: cultivar Columbia; BAC clone F15A17

C:Genetics:

A:Map position: 5

A:Introns: 24/3; 176/3; 233/1; 385/1; 415/3

A>Note: F15A17.210

Query Match 57.7%; Score 41; DB 2; Length 464;
Best Local Similarity 66.7%; Pred. No. 16;
Matches 8; Conservative 1; Mismatches 3; Indels 0; Gaps 0;

QY 2 NDEGLESVPTE 13
||| |||:
DB 235 NDEGLESVPTE 246

Search completed: November 9, 2000, 15:32:03
Job time: 184 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:40:22 ; Search time 41.83 seconds
(without alignments)
9.929 Million cell updates/sec

Title: US-09-266-543-8
Perfect score: 71
Sequence: 1 CNDGLESVPTEE 13

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues
Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 08
Maximum Match 1008
Listing first 45 summaries

Database: SwissProt_39.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	66	93.0	190	1 VEGF_PIG	P49151 sus scrofa
2	66	93.0	215	1 VEGF_HUMAN	P15692 homo sapien
3	60	84.5	133	1 VEGH_OREN2	P52584 orf virus (
4	60	84.5	146	1 VEGF_SHPED	P50412 ovis aries
5	60	84.5	164	1 VEGF_CANPO	P26617 cavla porce
6	60	84.5	190	1 VEGF_BOVIN	P15651 bos taurus
7	55	77.5	190	1 VEGF_RAT	P16612 rattus norv
8	55	77.5	214	1 VEGF_MOUSE	Q00731 mus musculu
9	47	66.2	216	1 VEGF_CHICK	P25822 gallus gall
10	45	63.4	188	1 VEGH_HUMAN	P49765 homo sapien
11	45	63.4	188	1 VEGH_MOUSE	P49766 mus musculu
12	43	60.6	368	1 PGSI_HUMAN	P21810 homo sapien
13	40	56.3	158	1 PLGF_MOUSE	P49764 mus musculu
14	40	56.3	360	1 PGSI_BOVIN	P21793 bos taurus
15	40	56.3	369	1 PGSI_BOVIN	P21809 bos taurus
16	40	56.3	369	1 PGSI_CANFA	P02678 canis famli
17	40	56.3	369	1 PGSI_MOUSE	P28653 mus musculu
18	40	56.3	369	1 PGSI_RAT	P47853 rattus norv
19	40	56.3	369	1 PGSI_SHEEP	O46403 equus cabal
20	40	56.3	372	1 PGSI_HORSE	O00248 aspergillus
21	40	56.3	515	1 PDI_ASPOB	O01139 rattus norv
22	39	54.9	354	1 PGSI_RAT	P28675 gallus gall
23	39	54.9	357	1 PGSI_CHICK	P28675 gallus gall
24	39	54.9	800	1 PGSI_CAMEL	P28689 c probabie
25	38	53.5	152	1 ADOM_BPT3	P07693 bacterioph
26	38	53.5	170	1 PLGF_HUMAN	P49763 homo sapien
27	38	53.5	772	1 NAD4_SCHPO	O09830 schistosach
28	37	52.1	83	1 NSG1_RAT	P02663 rattus norv
29	37	52.1	185	1 NSG1_MOUSE	Q02092 mus musculu
30	37	52.1	359	1 PGSI_HUMAN	P07585 homo sapien
31	37	52.1	360	1 PGSI_CANFA	Q29393 canis famli
32	37	52.1	360	1 PGSI_HORSE	O46542 equus cabal
33	37	52.1	360	1 PGSI_PIG	Q93699 sus scrofa

34	37	52.1	360	1 PGSI_RABIT	Q28888 oryctolagus
35	37	52.1	2139	1 CCAC_MOUSE	O01815 mus musculu
36	37	52.1	2169	1 CCAC_RAT	P22002 rattus norv
37	36	50.7	293	1 RSP4_CHLVR	P38984 chlorofydra
38	36	50.7	354	1 PGSI_MOUSE	P28654 mus musculu
39	36	50.7	473	1 UXAC_BACST	Q92118 bacillus st
40	36	50.7	519	1 GIG2_SOLTU	P55242 solanum tub
41	36	50.7	527	1 CATR_RAT	P04762 rattus norv
42	36	50.7	667	1 SIX5_MOUSE	P70178 mus musculu
43	36	50.7	773	1 PIGR_RABIT	P01832 oryctolagus
44	36	50.7	1264	1 YGN3_YEAST	P53125 saccharomyc
45	36	50.7	2221	1 CCAC_HUMAN	Q13936 homo sapien

ALIGNMENTS

RESULT	1	STANDARD	PRT	190 AA.
VEGF_PIG				
ID	VEGF_PIG			
AC	P49151			
DT	01-FEB-1996 (Rel. 33, Created)			
DT	01-FEB-1996 (Rel. 33, Last sequence update)			
DT	01-OCT-1996 (Rel. 34, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPE).			
GN	VEGF.			
OS	Sus scrofa (Pig).			
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	TISSUE-HEART;			
RX	MEDLINE; 95143234.			
RA	Sharma H.S.; Tang Z.H.; Gho B.C.H.; Verdouw P.D.;			
RT	"Nucleotide sequence and expression of the porcine vascular endothelial growth factor.";			
RL	Biochim. Biophys. Acta 1260:235-238(1995).			
CC	- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY (BY SIMILARITY).			
CC	- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).			
CC	- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY). BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.			
CC	- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.			
CC	-----			
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb.ch/announce/ or send an email to license@isb.sib.ch).			
CC	EMBL; X81380; CA57143.1; -			
DR	HSSP; P15692; 2YGH.			
DR	INTERPRO; IPR000072; -			
DR	PRAM; PF00341; PDGF; 1.			
DR	PROSITE; PS00243; PDGF_1; 1.			
DR	PROSITE; PS50273; PDGF_2; 1.			
KW	Mitogen; Growth factor; Glycoprotein; Signal.			
FT	SIGNAL	1	26	POTENTIAL.
FT	CHAIN	27	190	VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT	DISULFID	51	93	BY SIMILARITY.
FT	DISULFID	82	127	BY SIMILARITY.
FT	DISULFID	86	129	BY SIMILARITY.
FT	DISULFID	76	76	INTERCHAIN (BY SIMILARITY).
FT	DISULFID	85	85	INTERCHAIN (BY SIMILARITY).
FT	CARBOHYD	100	100	N-LINKED (GLCNAC...) (POTENTIAL).
SO	SEQUENCE	190 AA;	22368 MW;	04D408BD7913047F CRC64;

Query Match 93.0%; Score 66; DB 1; Length 190;
 Best Local Similarity 92.3%; Pred. No. 4.8e-05;
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13
 ||||| |||||
 Db 86 CNDGLECPVTEE 98

RESULT 2
 VEGF_HUMAN STANDARD; PRT; 215 AA.
 ID VEGF_HUMAN
 AC P15692;
 DT 01-APR-1990 (Rel. 14, last sequence update)
 DT 01-APR-1990 (Rel. 14, last sequence update)
 DT 15-JUL-1999 (Rel. 38, last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
 DE PERMEABILITY FACTOR) (VPF).
 GN VEGF OR VEGFA.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Euthera; Primates; Carnivora; Hominoidea; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 90069608.
 RA Leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
 RT "Vascular endothelial growth factor is a secreted angiogenic
 RT mitogen."
 RL Science 246:1306-1309(1989).
 RN [2]
 RP SEQUENCE FROM N.A., AND PARTIAL SEQUENCE.
 RX MEDLINE; 90069609.
 RA Reck P.J., Hauser S.D., Krivi G., Sanzo K., Warren T., Feder J.,
 RA Connolly D.T.;
 RT "Vascular permeability factor, an endothelial cell mitogen related to
 RT PGF.";
 RL Science 246:1309-1312(1989).
 RN [3]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 91268072.
 RA Fischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,
 RA Flidder J.C., Abraham J.A.;
 RT "The human gene for vascular endothelial growth factor. Multiple
 RT protein forms are encoded through alternative exon splicing."
 RL J. Biol. Chem. 266:11947-11954(1991).
 RN [4]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 92231879.
 RA Weindel K., Marne D., Welch H.A.;
 RT "Aids-associated Kaposi's sarcoma cells in culture express vascular
 RT endothelial growth factor."
 RL Biochem. Biophys. Res. Commun. 183:1167-1174(1992).
 RN [5]
 RP PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.
 RX MEDLINE; 90062112.
 RA Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R.,
 RA Siegel N., Haymore B.L., Leimgruber R., Feder J.;
 RT "Human vascular permeability factor. Isolation from U937 cells."
 RL J. Biol. Chem. 264:20017-20024(1989).
 RN [6]
 RP SEQUENCE OF 27-41.
 RX MEDLINE; 93145946.
 RA Fleibich B.L., Jaeger B., Schoellmann C., Weindel K., Witting J.,
 RA Kochs G., Marne D., Hug H., Welch H.A.;
 RT "Synthesis and assembly of functionally active human vascular
 RT endothelial growth factor homodimers in insect cells."
 RL Eur. J. Biochem. 211:19-26(1993).
 RN [7]
 RP X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.
 RX MEDLINE; 97352774.
 RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,
 RA de Vos A.M.;
 RT "Vascular endothelial growth factor: crystal structure and functional

RT mapping of the kinase domain receptor binding site."
 RL Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).
 RN [8]
 RP X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.
 RX MEDLINE; 98035455.
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;
 RT "The crystal structure of vascular endothelial growth factor (VEGF)
 RT refined to 1.93-A resolution: multiple copy flexibility and receptor
 RT binding."
 RL Structure 5:1325-1338(1997).
 RN [9]
 RP X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.
 RX MEDLINE; 99119204.
 RA Wiesmann C., Christinger H.W., Cochran A.G., Cunningham B.C.,
 RA Fairbrother W.J., Keenan C.J., Meng G., de Vos A.M.;
 RT "Crystal structure of the complex between VEGF and a receptor-binding
 RT peptide."
 RL Biochemistry 37:17765-17772(1998).
 RN [10]
 RP STRUCTURE BY NMR OF 34-135.
 RX MEDLINE; 97477915.
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
 RA Starovasnik M.A.;
 RT "1H, 13C, and 15N backbone assignment and secondary structure of the
 RT receptor-binding domain of vascular endothelial growth factor."
 RL Protein Sci. 6:2250-2260(1997).
 RN [11]
 RP STRUCTURE BY NMR OF 137-215.
 RX MEDLINE; 98298440.
 RA Fairbrother W.J., Champe M.A., Christinger H.W., Keyt B.A.,
 RA Starovasnik M.A.;
 RT "Solution structure of the heparin-binding domain of vascular
 RT endothelial growth factor."
 RL Structure 6:637-648(1998).
 CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 CC PERMEABILITY.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 CC SIMILARITY).
 CC -1- ALTERNATIVE PRODUCTS: FOUR FORMS OF VEGF ARE PRODUCED BY
 CC ALTERNATIVE SPLICING OF THE SAME GENE (VEGF-121, VEGF-165,
 CC VEGF-189 AND VEGF-215).
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL; M32977; AAA35789.1; -
 DR EMBL; M27281; AAA36807.1; -
 DR EMBL; M63978; AAA36804.1; -
 DR EMBL; M63977; AAA36804.1; JOINED.
 DR EMBL; M63972; AAA36804.1; JOINED.
 DR EMBL; M63973; AAA36804.1; JOINED.
 DR EMBL; M63974; AAA36804.1; JOINED.
 DR EMBL; M63975; AAA36804.1; JOINED.
 DR EMBL; M63976; AAA36804.1; JOINED.
 DR EMBL; M63977; AAA36804.1; JOINED.
 DR EMBL; X62568; CAA44447.1; -
 DR PIR; A34492; A34492.
 DR PIR; A40079; A40079.
 DR PIR; A40080; A40080.
 DR PIR; A40454; A40454.
 DR PIR; B40454; B40454.
 DR PIR; C40454; C40454.
 DR PIR; J01463; J01463.
 DR PIR; J01464; J01464.

DR PIR: S17348; S17348.
 DR PDB: 1VGH: 08-APR-98.
 DR PDB: 2VGH: 08-APR-98.
 DR PDB: 1VPE: 08-APR-98.
 DR PDB: 2VPE: 29-JUL-98.
 DR PDB: 1VPE: 23-FEB-99.
 DR MIM: 192240; .
 DR INTERPRO: IPR000072; .
 DR PRAM: PF00341; PDGF_1; 1.
 DR PROSITE: PS00249; PDGF_1; 1.
 DR PROSITE: PS50278; PDGF_2; 1.
 DR MitoGen: Growth factor; Glycoprotein; Alternative splicing; Signal;
 KM 3D-structure.
 FT SIGNAL 1 26
 FT CHAIN 27 215 VASCULAR ENDOTHELIAL GROWTH FACTOR.
 FT DISULFID 52 94
 FT DISULFID 83 128
 FT DISULFID 87 130
 FT DISULFID 77 77 INTERCHAIN.
 FT DISULFID 86 86 INTERCHAIN.
 FT CARBOHYD 101 101 N-LINKED (GLCNAC...).
 FT VARSPLIC 141 141 K->N (IN ISOFORM VEGF-121 AND ISOFORM
 FT VARSPLIC 142 165 VEGF-165).
 FT VARSPLIC 142 209 MISSING (IN ISOFORM VEGF-165).
 FT VARSPLIC 142 209 MISSING (IN ISOFORM VEGF-121).
 SO SEQUENCE 215 AA; 25173 MW; 7B9759AD5871FF33 CRC64;

Query Match 93.0%; Score 66; DB 1; Length 215;
 Best Local Similarity 92.3%; Pred. No. 5.5e-05;
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLESVPTEE 13
 DB 87 CNDEGLECPTEE 99

RESULT 3
 VEGH_OREN2 STANDARD; PRT; 133 AA.
 AC P52584;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 15-JUL-1999 (Rel. 38, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR HOMOLOG PRECURSOR.
 GN AAR.
 OS Olf virus (strain NZ2) (OV NZ-2).
 OC Viruses; dsDNA viruses, no RNA stage; Poxviridae; Chordopoxvirinae;
 OC Parapoxvirus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE: 94076465.
 RA Lytle D.J., Fraser K.M., Fleming S.B., Mercer A.A., Robinson A.J.;
 RT "Homologs of vascular endothelial growth factor are encoded by the
 RT poxvirus of virus."
 RL J. Virol. 68:84-92(1994).
 CC 1- FUNCTION: INDUCES ENDOTHELIAL PROLIFERATION.
 CC 1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
 CC 1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: S67520; AAB29220.1; .
 DR HSSP: P15692; 1VPE.
 DR INTERPRO: IPR000072; .
 DR PRAM: PF00341; PDGF_1; 1.
 DR PROSITE: PS00249; PDGF_1; 1.
 DR PROSITE: PS50278; PDGF_2; 1.
 DR MitoGen: Growth factor; Glycoprotein; Signal;
 KM 3D-structure.
 FT SIGNAL 1 26
 FT CHAIN 27 146 VASCULAR ENDOTHELIAL GROWTH FACTOR.
 FT DISULFID 51 93

DR PROSITE: PS50278; PDGF_2; 1.
 DR MitoGen: Growth factor; Glycoprotein; Signal;
 KM 3D-structure.
 FT SIGNAL 1 133
 FT CHAIN 27 133 VASCULAR ENDOTHELIAL GROWTH FACTOR
 FT DISULFID 36 78
 FT DISULFID 67 112 BY SIMILARITY.
 FT DISULFID 71 114 BY SIMILARITY.
 FT DISULFID 61 61 INTERCHAIN (BY SIMILARITY).
 FT DISULFID 70 70 INTERCHAIN (BY SIMILARITY).
 FT CARBOHYD 85 85 N-LINKED (GLCNAC...). (POTENTIAL).
 SO SEQUENCE 133 AA; 14715 MW; 917C0F688303C39 CRC64;

Query Match 84.5%; Score 60; DB 1; Length 133;
 Best Local Similarity 84.6%; Pred. No. 0.00041;
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLESVPTEE 13
 DB 71 CNDEGLECPTEE 83

RESULT 4
 VEGF_SHEEP STANDARD; PRT; 146 AA.
 AC P50412;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 01-NOV-1997 (Rel. 35, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
 DE PERMEABILITY FACTOR) (VPF).
 GN VEGF.
 OS Ovis aries (Sheep).
 OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Caprinae; Ovis.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-KIDNEY;
 RX MEDLINE: 97117958.
 RA Redmer D.A., Dai Y., Li J., Charnock-Jones D.S., Smith S.K.,
 RA Reynolds L.P., Moor R.M.;
 RT "Characterization and expression of vascular endothelial growth
 RT factor (VEGF) in the ovine corpus luteum."
 RL J. Reprod. Fert. 108:157-165(1996).
 CC 1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 CC PERMEABILITY.
 CC 1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC 1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 CC SIMILARITY).
 CC 1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL: X89506; CAA61677.1; .
 DR HSSP: P15692; 1VPE.
 DR INTERPRO: IPR000072; .
 DR PRAM: PF00341; PDGF_1; 1.
 DR PROSITE: PS00249; PDGF_1; 1.
 DR PROSITE: PS50278; PDGF_2; 1.
 DR MitoGen: Growth factor; Glycoprotein; Signal;
 KM 3D-structure.
 FT SIGNAL 1 26
 FT CHAIN 27 146 VASCULAR ENDOTHELIAL GROWTH FACTOR.
 FT DISULFID 51 93

FT	DISUFID	82	127	BY SIMILARITY.
FT	DISUFID	86	129	BY SIMILARITY.
FT	DISUFID	76	76	INTERCHAIN (BY SIMILARITY).
FT	DISUFID	85	85	INTERCHAIN (BY SIMILARITY).
FT	CARBOHYD	100	100	N-LINKED (GLCNAC. .) (POTENTIAL)
SO	SEQUENCE	146 AA;	17247 MM;	4E79C2CB57E9160 CRC64;

Query Match	84.5%	Score 60;	DB 1;	Length 146;
Best Local Similarity	84.6%	Pred. No. 0.00046;		
Matches 11; Conservative	0;	Mismatches 2;	Indels 0;	Gaps 0;
QY	1	CNDEGLASVPTRE	13	
DB	86	CNDESLSCVPTRE	98	

ID	VEGF_CAVPO	STANDARD;	PRT;	164 AA.
AC	P26617;			
DT	01-AUG-1992 (Rel. 23, Created)			
DT	01-AUG-1992 (Rel. 23, Last sequence update)			
DT	01-OCT-1996 (Rel. 34, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).			
GN	VEGF.			
OS	Cavia porcellus (Guinea pig).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Rodentia; Hystriocognathi; Cavidae; Cavia.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RA	Berse B.;			
RL	Submitted (XXX-1992) to the EMBL/Genbank/DBJ databases.			
CC	-1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS. AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.			
CC	-1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.			
CC	-1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).			
CC	-1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.			
CC	-----			
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation at the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way commercialized and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/ or send an email to license@isb-sib.ch).			
CC	-----			

DR	HSSP: P15692; 2VGH.	
DR	INTERPRO: IPR000072; -.	
DR	PFAM: PF00341; PDGF; 1.	
DR	PROSITE: PS00249; PDGF_1; 1.	
DR	PROSITE: PS0278; PDGF_2; 1.	
KW	Mitogen: Growth factor; Glycoprotein.	
FT	DISULFID	25 67
FT		BY SIMILARITY.
FT	DISULFID	56 101
FT		BY SIMILARITY.
FT	DISULFID	60 103
FT		BY SIMILARITY.
FT	DISULFID	50 50
FT		INTERCHAIN (BY SIMILARITY).
FT	DISULFID	59 59
FT		INTERCHAIN (BY SIMILARITY).
FT	CARBOHD	74 74
FT		N-LINKED (GICMNC...) (POTENTIAL).
SQ	SEQUENCE	164 AA; 19330 MW; 9E886A18AD5DCA4 CR664;

```

Query Match          84.5%;   Score 60;   DB 1;   length 164;
Best Local Similarity 84.6%;   Pred. No. 0.00052;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0
QY      1 CNDGGLSEVPTTE 13
        ||||| || |||||

```

Db. 60 CNDESLCVPTEE 72

VEGF	VEGF_BOVIN	STANDARD;	PRT;	190 AA.
RESULT	6			
AC	P15691;			
DT	01-APR-1990 (Rel. 14, last sequence update)			
DT	01-APR-1990 (Rel. 14, last annotation update)			
DT	01-OCT-1996 (Rel. 34, last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).			
VEGF				
DN				

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
OC Bovidae; Bovinae; Bos.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.
RX MEDLINE; 90069608.
RA Leung D.W., Cacchianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;
RT "vascular endothelial growth factor is a secreted angiogenic
RT mitogen".
RL Science 246:1306-1309(1989).
RN [2]
RP SEQUENCE OF 27-190 FROM N.A.
RX MEDLINE; 90121225.
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,
RA Lau K., Crisp T., Fiddes J.C., Abraham J.A.;
RT "vascular endothelial growth factor: a new member of the platelet-
RT derived growth factor gene family".
RL Biochem. Biophys. Res. Commun. 165:1198-1206(1989).

```

RP SEQUENCE OF 27-31.
RX MEDLINE: 89286596.
RA Ferrara N., Henzel W.J.:
RT "pituitary follicular cells secrete a novel heparin-binding growth
RT factor specific for vascular endothelial cells.";
RL Biochem. Biophys. Res. Commun. 161:851-858(1989).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).

```

DR	EMBL; M32976; AAA30502.1; -		
DR	EMBL; M31836; AAA30804.1; -		
DR	EMBL; M33750; AAA30803.1; -		
DR	PIR; A33255; A33255.		
DR	PIR; A33787; A33787.		
DR	PIR; B40080; B40080.		
DR	HSSP; P15692; 2YGH.		
DR	INTERPRO: IPR006072; -		
DR	PFAM; PF00341; PDGF; 1.		
DR	PROSITE; PS00245; PDGF_1; 1.		
DR	PROSITE; PS02076; PDGF_2; 1.		
KW	Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.		
FT	CHAIN	1..26	VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT	DISULFID	27..190	BY SIMILARITY.
FT	DISULFID	51..93	BY SIMILARITY.
FT	DISULFID	82..127	BY SIMILARITY.
FT	DISULFID	86..129	BY SIMILARITY.


```

FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).
FT VARSPLIC 139 183 MISSING (IN ISOFORM BETA).
FT VARSPLIC 184 184 R -> K (IN ISOFORM BETA).
SQ SEQUENCE 190 AA; 22310 MM; EDBF90346E24789 CRC64;

Query/Match 84.5%; Score 60; DB 1; Length 190;
Best Local Similarity 84.6%; Pred. No. 0.00062;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13
DB 86 CNDSELCVPTTEE 98

RESULT 7
VEGF_RAT STANDARD; PRT; 190 AA.
AC P16612;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-190.
RX MEDLINE: 90207249.
RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A., Palist T.M., Hope D.A., Thomas K.A.; "Amino acid and cdna sequences of a vascular endothelial cell mitogen that is homologous to platelet-derived growth factor."; Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).
RL FUNC. NATL. GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY SIMILARITY).
CC -1- TISSUE SPECIFICITY: EXPRESSED IN THE PITUITARY, IN BRAIN, IN PARTICULAR IN SUPRACOPTIC AND PARAVENTRICULAR NUCLEI AND THE CHOROID PLEXUS. ALSO FOUND ABUNDANTLY IN THE CORPUS LUTEUM OF THE OVARY AND IN KIDNEY GLOMERULI.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/ or send an email to license@sib-sib.ch).
CC -----
DR EMBL: M32167; AAM1211.1; -.
DR PIR: A35987; A35987.
DR HSSP: P15692; 2VGH.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF_1.
DR PROSITE: PS00248; PDGF_1; 1.
DR PROSITE: PS0278; PDGF_2; 1.
CC Mitogen; Growth factor; Glycoprotein; signal.
FT CHAIN 27 190 VASCULAR ENDOTHELIAL GROWTH FACTOR.
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).

```

```

FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAC... ) (POTENTIAL).
SQ SEQUENCE 190 AA; 22396 MM; 569374010441F377 CRC64;

Query/Match 77.5%; Score 55; DB 1; Length 190;
Best Local Similarity 76.9%; Pred. No. 0.0052;
Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTEE 13
DB 86 CNDSELCVPTTEE 98

RESULT 8
VEGF_MOUSE STANDARD; PRT; 214 AA.
AC Q00731;
DT 01-APR-1993 (Rel. 25, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE: 92274850.
RA Breier G., Albrecht U., Sterrer S., Risau W.; "Expression of vascular endothelial growth factor during embryonic angiogenesis and endothelial cell differentiation."; Development 114:521-532(1992).
RL Development 114:521-532(1992).
RN [2]
RP SEQUENCE FROM N.A. (VEGF-1).
RX MEDLINE: 92355593.
RA Clafey K.P., Wilkison W.O., Spiegelman B.M.; "Vascular endothelial growth factor Regulation by cell differentiation and activated second messenger pathways."; J. Biol. Chem. 267:16317-16322(1992).
RL [3]
RN [3]
RP SEQUENCE OF 1-3' FROM N.A.
RX MEDLINE: 96216438.
RA Shima D.T., Kuraki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.; "The mouse gene for vascular endothelial growth factor. Genomic structure, definition of the transcriptional unit, and characterization of transcriptional and post-transcriptional regulatory sequences."; J. Biol. Chem. 271:3877-3883(1996).
RL J. Biol. Chem. 271:3877-3883(1996).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: VEGF-1 AND VEGF-2 ARE SECRETED WHILE VEGF-3 REMAINS CELL-SURFACE ASSOCIATED UNLESS RELEASED BY HEPARIN.
CC -1- ALTERNATIVE PRODUCTS: THREE FORMS (VEGF-1, VEGF-2 AND VEGF-3) ARE PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME GENE. THE LONGEST FORM (VEGF-3, SHOWN HERE) CONTAINS A BASIC INSERT LINKED TO CELL-ASSOCIATION/HEPARIN-BINDING.
CC -1- TISSUE SPECIFICITY: IN DEVELOPING EMBRYOS, EXPRESSED MAINLY IN KIDNEY GLOMERULI. ALSO FOUND IN BRONCHIAL EPITHELIUM, PLACENTA AND GLAND AND IN SEMINIFEROUS TUBULES OF TESTIS. HIGH EXPRESSION OF VEGF CONTINUES IN KIDNEY GLOMERULI AND CHOROID PLEXUS IN ADULTS.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial

```

```
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/  
or send an email to license@isb-sib.ch).  
-----  
DR EMBL; S37052; AAB22252.1; -  
DR EMBL; S38083; AAB22253.1; -  
DR EMBL; S38100; AAB22254.1; -  
DR EMBL; M95200; AAA40547.1; -  
DR EMBL; U41383; CAB35545.1; -  
DR PIR; A43351; A43351.  
DR HSSP; P15692; 2YGH.  
DR MGD; MGI:103178; VEGF.  
DR INTERPRO; IPR000072; -  
DR PFAM; PF00341; PDGF_1;  
DR PROSITE; PS00249; PDGF_1; 1.  
DR PROSITE; PSS0278; PDGF_2; 1.  
KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.  
FT SIGNAL 1 26  
FT CHAIN 27 214  
FT DISULFID 51 93  
FT DISULFID 82 127  
FT DISULFID 86 129  
FT DISULFID 76 76  
FT DISULFID 85 85  
FT CARBOHYD 100 100  
FT VARSPPLIC 140 140  
FT VARSPPLIC 141 164  
FT VARSPPLIC 141 208  
FT CONFLICT 117 118  
SQ SEQUENCE 214 AA; 25283 MW; B5540B51E4BB6E17 CRC64;  
  
Query Match 77.5%; Score 55; DB 1; Length 214;  
Best Local Similarity 76.9%; Pred. No. 0.0059;  
Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;  
  
OY 1 CNDEGLSEVPTEE 13  
Db 86 CNDEALCEVPTSE 98  
      |||||  
      ||| | ||| |  
  
RESULT 9  
VEGF_CHICK STANDARD; PRT; 216 AA.  
ID VEGF_CHICK Q91420;  
AC P25582; Q91420;  
DT 01-JUL-1996 (Rel. 34, Created)  
DT 15-JUL-1998 (Rel. 36, Last sequence update)  
DT 15-DEC-1998 (Rel. 37, Last annotation update)  
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VEPF).  
GN VEGF.  
OS Gallus gallus (Chicken), and  
OC Coturnix coturnix japonica (Japanese quail);  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
OC Gallus.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC SPECIES=CHICKEN; TISSUE=HEART;  
RA Takahashi T.;  
RL Submitted (FEB-1998) to the EMBL/GenBank/DBJ databases.  
RN [2]  
RP SEQUENCE FROM N.A.  
RC SPECIES=C.C.JAPONICA; TISSUE=EMBRYO;  
RX MEDLINE; 96005007.  
BA Flamme I., von Reutern M., Drexler H.C., Syed-Ali S., Risau W.;  
RT "Overexpression of vascular endothelial growth factor in the avian  
embryo induces hypervascularization and increased vascular  
permeability without alterations of embryonic pattern formation.";  
RL Dev. Biol. 171:399-414(1995).  
RN [3]  
RP SEQUENCE OF 60-187 FROM N.A.  
RC SPECIES=C.C.JAPONICA;  
RX MEDLINE; 95301109.
```

RA	Flamme L., Breier G., Risau W.;
RT	"Vascular endothelial growth factor (VEGF) and VEGF receptor 2
RT	(flk-1) are expressed during vasculogenesis and vascular
RT	differentiation. In the quail embryo.";
RL	Dev. Biol. 169:699-712(1995).
CC	-I- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC	CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC	PERMEABILITY.
CC	-I- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC	-I- ALTERNATIVE PRODUCTS: THREE ISOFORMS (VEGF-190, VEGF-166 AND VEGF-
CC	166) ARE PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME
CC	GENE. THE LONGER FORM CONTAINS A BASIC INSERT WHICH ACTS AS A CELL
CC	RETENTION SIGNAL.
CC	-I- TISSUE SPECIFICITY: ABUNDANTLY AND EQUALLY EXPRESSED IN HEART AND
CC	LIVER. IN KIDNEY GLOMERULI, BRAIN AND YOLK SAC, VEGF-166 FORM IS
CC	5- TO 10- TIMES MORE ABUNDANT THAN THE VEGF-190 FORM.
CC	-I- DEVELOPMENTAL STAGE: THE VEGF-166 FORM IS EXPRESSED EARLY AT DAY 1
CC	AND IS UPGRADED DURING GASTRULATION. EXPRESSION OF THE VEGF-190
CC	FORM IS DETECTABLE ONLY FROM DAY 2.
CC	-I- SIMILARITY: BELONGS TO THE PDGFR-FAMILY OF GROWTH FACTORS.
CC	-----
CC	This SWISS-PROT entry is copyright. It is produced through a collaboration
CC	between the Swiss Institute of Bioinformatics and the EMBL Outstation -
CC	The European Bioinformatics Institute. There are no restrictions on its
CC	use by non-profit institutions as long as its content is in no way
CC	modified and this statement is not removed. Usage by and for commercial
CC	entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC	or send an email to license@isb-sib.ch).
DR	EMBL; AB011078; BAA24925.1; -
DR	EMBL; S79680; AAB3571.1; -
DR	HSSP; P15692; ZYGH.
DR	INTERPRO; IPR000072; -
DR	Pfam; PF00341; PDGF_1.
DR	PROSITE; PS00249; PDGF_1; 1.
KW	Prosite; PS0276; PDGF_2; 1.
DM	Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT	SIGNAL
FT	CHAIN
FT	DISULFID
FT	DISULFID
FT	DISULFID
FT	CARBOHYD
FT	VARSPLIC
FT	VARSPLIC
FT	VARSPLIC
FT	VARSPLIC
FT	SEQUENCE
SQ	216 AA; 25203 MW; 82E669C2PF6CDA7 CRC64;
QY	1 CNDGLESVPYE 12
DB	CGDEGECYPVD 98
RESULT	10
VEGF_HUMAN	STANDARD; PRF; 188 AA.
AC	P49765;
DT	01-OCT-1996 (Rel. 34, Created)
DT	01-OCT-1996 (Rel. 34, Last sequence update)
DE	15-DEC-1998 (Rel. 37, Last annotation update)
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR B PRECURSOR (VEGF-B) (VEGF RELATED
DE	FACTOR).
GN	VEGFB OR VRF.
OS	Homo sapiens (Human).
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC	Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.

```

RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 96197355.
RA Olofsson B., Pajusola K., Kaipainen A., von Euler G., Joukov V.,
RT "Vascular endothelial growth factor B, a novel growth factor for
RT endothelial cells."
RL Proc. Natl. Acad. Sci. U.S.A. 93:2576-2581(1996).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE; 97077124.
RA Grimmer S., Lagercrantz J., Drinkwater C., Sillis G., Thomson S.,
RA Pollock P., Gotley D., Carson E., Rakar S., Nordenskjöld M., Ward L.,
RA Hayward N., Weber G.,
RT "Cloning and characterization of a novel human gene related to
RT vascular endothelial growth factor."
RL Genome Res. 6:124-131(1996).
CC -1- FUNCTION: GROWTH FACTOR FOR ENDOTHELIAL CELLS. BINDS HEPARIN.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED. CAN ALSO FORM HETERODIMER
CC WITH VEGF.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN.
CC -1- TISSUE SPECIFICITY: EXPRESSED IN ALL TISSUES EXCEPT LIVER.
CC HIGHEST LEVELS FOUND IN HEART, SKELETAL MUSCLE AND PANCREAS.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; U48801; AAB06274.1; -
DR EMBL; U43369; AAA91463.1; -
DR HSSP; P15692; IVPF.
DR MIM; 601398; -
DR INTERPRO: IPR000072; -
DR PIRAM; PF00341; PDGF_1;
DR PROSITE; PS00249; PDGF_1;
DR PROSITE; PS50278; PDGF_2; 1.
KM Mitogen; Growth factor; Signal; Heparin-binding.
FT SIGNAL
FT CHAIN 1 21 POTENTIAL.
FT SEQUENCE 188 AA; 21261 MW; F04654D5A3727194 CRC64;
SQ
Query Match 63.4%; Score 45; DB 1; Length 188;
Best Local Similarity 72.7%; Pred. No. 0.37;
Matches 8; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
QY 1 CNDGLESVPT 11
DB 82 CPDGLCECVPT 92

```

```

RX MEDLINE; 96197355.
RA Olofsson B., Pajusola K., Kaipainen A., von Euler G., Joukov V.,
RA Saksela O., Orpana A., Petersson R.F., Alltalo K., Eriksson U.;
RT "Vascular endothelial growth factor B, a novel growth factor for
RT endothelial cells."
RL Proc. Natl. Acad. Sci. U.S.A. 93:2576-2581(1996).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE; 96183052.
RA Grimmer S., Lagercrantz J., Grimmer S., Sillis G.,
RA Nordenskjöld M., Weber G., Hayward N.K.;
RT "Characterization of the murine VEGF-related factor gene."
RL Biochem. Biophys. Res. Commun. 220:922-928(1996).
CC -1- FUNCTION: GROWTH FACTOR FOR ENDOTHELIAL CELLS. BINDS HEPARIN.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED. CAN ALSO FORM HETERODIMER
CC WITH VEGF.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN.
CC -1- TISSUE SPECIFICITY: ABUNDANTLY EXPRESSED IN HEART, BRAIN, KIDNEY
CC AND SKELETAL MUSCLE.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; U48800; AAB06273.1; -
DR EMBL; U43837; AAC52553.1; -
DR HSSP; P15692; 2VGH.
DR MGD; MGI:106199; VEGFB.
DR INTERPRO: IPR000072; -
DR PIRAM; PF00341; PDGF_1;
DR PROSITE; PS00249; PDGF_1;
DR PROSITE; PS50278; PDGF_2; 1.
KM Mitogen; Growth factor; Signal; Heparin-binding.
FT SIGNAL
FT CHAIN 1 21 POTENTIAL.
FT SEQUENCE 188 AA; 21442 MW; D52A05F895E9CA CRC64;
SQ
Query Match 63.4%; Score 45; DB 1; Length 188;
Best Local Similarity 72.7%; Pred. No. 0.37;
Matches 8; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
QY 1 CNDGLESVPT 11
DB 82 CPDGLCECVPT 92

```

```

RESULT 11
VEGB_MOUSE STANDARD; PRT; 188 AA.
AC P49766;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 15-DEC-1998 (Rel. 37, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR B PRECURSOR (VEGF-B) (VASCULAR
DE ENDOTHELIAL GROWTH FACTOR RELATED PROTEIN) (VRE).
GN VEGFB OR VRF.
OS Mus musculus (Mouse).
OC Eumariota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
RN [1]
RP SEQUENCE FROM N.A.
RT TISSUE=HEART;

```

```

RESULT 12
PGSL_HUMAN STANDARD; PRT; 368 AA.
AC P21810; P13247;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-APR-1993 (Rel. 25, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE BONE/CARTILAGE PROTEOGLYCAN I PRECURSOR (BIGLYCAN) (PG-SI).
GN BGN.
OS Homo sapiens (Human).
OC Eumariota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=bone;
RX MEDLINE; 89174714.
RA Fisher L.W., Teitel J.D., Young M.F.;
RT "Deduced protein sequence of bone small proteoglycan I (biglycan)
RT shows homology with proteoglycan II (decorin) and several

```


FT DISULFID 79 125 BY SIMILARITY.
 FT DISULFID 83 127 INTERCHAIN (BY SIMILARITY).
 FT DISULFID 73 73 INTERCHAIN (BY SIMILARITY).
 FT DISULFID 82 82 INTERCHAIN (BY SIMILARITY).
 FT CARBOHYD 29 25 N-LINKED (GLCNAC. . .) (POTENTIAL).
 FT CARBOHYD 30 30 N-LINKED (GLCNAC. . .) (POTENTIAL).
 FT CARBOHYD 97 97 N-LINKED (GLCNAC. . .) (POTENTIAL).
 SQ SEQUENCE 158 AA; 17876 MW; F16128BEA0790438 CRC64;

Query Match 56.3%; Score 40; DB 1; Length 158;
 Best Local Similarity 70.0%; Pred. No. 2.5;
 Matches 7; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVP 10
 DB 83 CGDEGLHCPV 92

RESULT 14
 PGSL_BOVIN STANDARD; PRT; 360 AA.
 AC P21793;
 DT 01-MAY-1991 (Rel. 18, Created)
 DT 01-MAY-1991 (Rel. 18, Last sequence update)
 DT 01-OCT-1996 (Rel. 34, Last annotation update)
 DE BONE PROTEOGLYCAN II PRECURSOR (PG-S2) (DECORIN).
 GN DCN.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 88133946.
 RA Day A.A., McQuillan C.I., Termini J.D., Young M.R.;
 RT "Molecular cloning and sequence analysis of the cDNA for small
 RT proteoglycan II of bovine bone";
 RL Biochem. J. 248:801-805(1987).
 RN [2]
 RP SEQUENCE OF 31-54.
 RX MEDLINE; 89123388.
 RA Choi H.U., Johnson T.L., Pal S., Tang L.H., Rosenberg L., Neame P.J.;
 RT "Characterization of the dermatan sulfate proteoglycans, DS-PGI and
 RT DS-PGII, from bovine articular cartilage and skin isolated by octyl-
 RT sepharose chromatography";
 RL J. Biol. Chem. 264:2876-2884(1989).
 CC -1- FUNCTION: BINDS TO TYPE I AND TYPE II COLLAGEN AND AFFECTS THE
 CC RATE OF FIBRILS FORMATION. ALSO BINDS TO FIBRONECTIN AND TGF-
 CC BETA.
 CC -1- PTM: THE GLYCOSAMINOGLYCAN CHAIN ATTACHED TO DECORIN CAN BE EITHER
 CC CHONDROITIN SULFATE OR DERMATAN SULFATE DEPENDING UPON THE
 CC TISSUE OF ORIGIN.
 CC -1- SIMILARITY: BELONGS TO THE SMALL INTERSTITIAL PROTEOGLYCANS
 CC FAMILY.
 CC -1- SIMILARITY: THE REPEATED LEUCINE-RICH (LRR) SEGMENT IS FOUND IN
 CC MANY PROTEINS. NUMBER IN THIS PROTEIN: 10.
 CC -1- THIS SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC
 CC EMBL; Y00712; CA68702.1; -
 CC PIR; S06280; S06280.
 CC PIR; B31430; B31430.
 CC INTERPRO; IPR000372; -
 CC INTERPRO; IPR001611; -
 CC PFAM; PF00560; LRR_7.
 CC PFAM; PF01462; LRRNT; 1.

KW Glycoprotein; Connective tissue; Extracellular matrix; Proteoglycan;
 KW Repeat; Leucine-repeat; Signal.
 FT SIGNAL 1 16 POTENTIAL.
 FT PROPEP 17 30
 FT CHAIN 31 360 BONE PROTEOGLYCAN II.
 FT DOMAIN 78 309 LEUCINE-RICH REPEATS.
 FT REPEAT 78 99 LRR 1.
 FT REPEAT 100 123 LRR 2.
 FT REPEAT 124 146 LRR 3.
 FT REPEAT 147 168 LRR 4.
 FT REPEAT 169 194 LRR 5.
 FT REPEAT 195 218 LRR 6.
 FT REPEAT 219 239 LRR 7.
 FT REPEAT 240 263 LRR 8.
 FT REPEAT 264 286 LRR 9.
 FT REPEAT 287 309 LRR 10.
 FT CARBOHYD 34 34 O-LINKED (GLYCOSAMINOGLYCAN) (BY
 FT SIMILARITY).
 FT CARBOHYD 212 212 N-LINKED (GLCNAC. . .) (POTENTIAL).
 FT CARBOHYD 263 263 N-LINKED (GLCNAC. . .) (POTENTIAL).
 FT CARBOHYD 304 304 N-LINKED (GLCNAC. . .) (POTENTIAL).
 FT DISULFID 55 68 BY SIMILARITY.
 FT DISULFID 314 347 BY SIMILARITY.
 SQ SEQUENCE 360 AA; 39837 MW; 71E84DA2D87552C0 CRC64;

Query Match 56.3%; Score 40; DB 1; Length 360;
 Best Local Similarity 58.3%; Pred. No. 6.4;
 Matches 7; Conservative 2; Mismatches 3; Indels 0; Gaps 0;

QY 1 CNDGLESVPTE 12
 DB 68 CSDGLEKVPKD 79

RESULT 15
 PGSL_BOVIN STANDARD; PRT; 369 AA.
 ID PGSL1809; P79259;
 AC P21809;
 DT 01-MAY-1991 (Rel. 18, Created)
 DT 15-JUL-1998 (Rel. 36, Last sequence update)
 DT 15-JUL-1998 (Rel. 36, Last annotation update)
 DE BONE/CARTILAGE PROTEOGLYCAN I PRECURSOR (BIGLYCAN) (LEUCINE-RICH PG I)
 DE (PG-S1).
 GN BGN.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX TISSUE-AORTA;
 RX MEDLINE; 96113553.
 RA Xu J.H., Radhakrishnamurthy B., Srinivasan S.R., Berenson G.S.;
 RT "Primary structure of bovine aorta biglycan core protein deduced from
 RT cloned cDNA";
 RL Biochem. Mol. Biol. Int. 37:263-272(1995).
 RN [2]
 RP SEQUENCE OF 38-369.
 RX TISSUE-CARTILAGE;
 RX MEDLINE; 89255324.
 RA Neame P.J., Choi H.U., Rosenberg L.C.;
 RT "The primary structure of the core protein of the small, leucine-rich
 RT proteoglycan (PS I) from bovine articular cartilage";
 RL J. Biol. Chem. 264:8653-8661(1989).
 RN [3]
 RP SEQUENCE OF 38-53;
 RX TISSUE-CARTILAGE;
 RX MEDLINE; 89123388.
 RA Choi H.U., Johnson T.L., Pal S., Tang L.H., Rosenberg L.C.,
 RA Neame P.J.;
 RT "Characterization of the dermatan sulfate proteoglycans, DS-PGI and
 RT DS-PGII, from bovine articular cartilage and skin isolated by octyl-

RT sepharose chromatography.";
RL J. Biol. Chem. 264:2876-2884(1989).
CC -1- TISSUE SPECIFICITY: FOUND IN THE EXTRACELLULAR MATRICES OF SEVERAL
CC CONNECTIVE TISSUES, SPECIALLY IN ARTICULAR CARTILAGES.
CC -1- PTM: THE TWO GLYCOSAMINOGLYCAN CHAINS ATTACHED TO BIGLYCAN CAN BE
CC EITHER CHONDROITIN SULFATE OR DERMATAN SULFATE.
CC -1- SIMILARITY: BELONGS TO THE SMALL INTERSTITIAL PROTEOGLYCANS
CC FAMILY.
CC -1- SIMILARITY: THE REPEATED LEUCINE-RICH (LRR) SEGMENT IS FOUND IN
CC MANY PROTEINS. NUMBER IN THIS PROTEIN: 10.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
CC EMBL; S82652; AAB46746.1; -.
DR PIR; A33701; A33701.
DR INTERPRO; IPR000372; -.
DR INTERPRO; IPR001611; -.
DR PRAM; PF00560; LRR; 8.
DR PFAM; PF01462; LRRNT; 1.
KW Glycoprotein; Connective tissue; Extracellular matrix; Proteoglycan;
KW Signal; Repeat; Leucine-repeat.
FT SIGNAL 1 19
FT PROPEP 20 37
FT CHAIN 38 369
FT DOMAIN 93 316
FT REPEAT 93 106
FT REPEAT 117 130
FT REPEAT 141 154
FT REPEAT 162 175
FT REPEAT 186 199
FT REPEAT 211 224
FT REPEAT 232 245
FT REPEAT 256 269
FT REPEAT 280 288
FT REPEAT 303 316
FT CARBOHYD 42 48
FT CARBOHYD 271 271
FT CARBOHYD 312 312
FT DISULFID 64 77
FT DISULFID 322 355
FT CONFLICT 152 152
FT CONFLICT 188 188
FT CONFLICT 354 354
FT CONFLICT 368 369
SQ SEQUENCE 369 AA; 41509 MW; 453309FFBD1B8872 CRC64;

Query Match 56.3%; Score 40; DB 1; Length 369;
Best Local Similarity 58.3%; Pred. No. 6.6;
Matches 7; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPT 12
|:| |::| |
Db 77 CSDGLKAVPK 88
C -> V (IN REF. 2).
C -> E (IN REF. 2).
A -> R (IN REF. 2).
KK -> Y (IN REF. 2).
O-LINKED (GLYCOSAMINOGLYCAN).
O-LINKED (GLYCOSAMINOGLYCAN).
N-LINKED (GLCNAC. . .).
N-LINKED (GLCNAC. . .).
BONE/CARTILAGE PROTEOGLYCAN I.
LEUCINE-RICH REPEATS.
LRR 1.
LRR 2.
LRR 3.
LRR 4.
LRR 5.
LRR 6.
LRR 7.
LRR 8.
LRR 9.
LRR 10.

Search completed: November 9, 2000, 15:40:23
Job time: 576 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:39:38 ; Search time 106.63 Seconds
(without alignments)
11.384 Million cell updates/sec

Title: US-09-266-543-8

Perfect score: 71
Sequence: 1 CNDGLESVPTEE 13

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues
Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

SPTREMBL_14:*
1: sp.archaea:*
2: sp.bacteria:*
3: sp.fungi:*
4: sp.human:*
5: sp.invertebrate:*
6: sp.mammal:*
7: sp.mhc:*
8: sp.organelle:*
9: sp.phage:*
10: sp.plant:*
11: sp rodent:*
12: sp.virus:*
13: sp.vertibrate:*
14: sp.unclassified:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	66	93.0	147	4	Q9UH58
2	66	93.0	174	4	Q9UL23
3	66	93.0	190	6	Q9XSF3
4	66	93.0	208	6	Q9XSF4
5	66	93.0	209	4	Q60720
6	66	93.0	214	6	Q9XSF5
7	66	93.0	254	4	Q16889
8	60	84.5	68	6	Q97500
9	60	84.5	75	6	Q18843
10	60	84.5	132	12	Q9YMF3
11	60	84.5	190	6	Q77643
12	57	80.3	191	4	Q75875
13	55	77.5	110	11	Q88911
14	55	77.5	141	11	Q70123
15	55	77.5	144	13	Q73822
16	55	77.5	146	11	Q9QXG6
17	55	77.5	148	13	Q42571
18	55	77.5	188	13	Q73682
19	55	77.5	190	11	Q9QX39

20	55	77.5	194	13	Q42572	Q42572 xenopus lae
21	55	77.5	214	11	Q9QXG7	Q9QXG7 rattus norv
22	46	64.8	670	10	Q65749	Q65749 cicer ariet
23	45	63.4	188	6	Q9XSF4	Q9XSF4 bos taurus
24	45	63.4	193	6	Q9XSF4	Q9XSF4 bos taurus
25	45	63.4	207	4	Q16528	Q16528 homo sapien
26	45	63.4	207	11	Q64290	Q64290 mus musculu
27	44	62.0	251	1	Q52002	Q52002 halobacteri
28	43	60.6	3107	12	P87587	P87587 citrus tris
29	41	57.7	1121	12	Q89882	Q89882 human herpe
30	41	57.7	1736	10	Q81899	Q81899 arabidopsis
31	40	56.3	116	11	Q35485	Q35485 rattus norv
32	40	56.3	150	11	Q54881	Q54881 rattus norv
33	40	56.3	360	6	Q9TWE2	Q9TWE2 ovis aries
34	40	56.3	606	5	Q9TWE7	Q9TWE7 caenorhabd
35	40	56.3	645	3	Q12348	Q12348 saccharomyc
36	40	56.3	1006	3	Q74458	Q74458 schizosacch
37	40	56.3	1440	5	Q20204	Q20204 caenorhabd
38	39	54.9	146	4	Q9Y3J3	Q9Y3J3 homo sapien
39	39	54.9	149	4	Q9Y6S8	Q9Y6S8 homo sapien
40	39	54.9	267	5	Q26259	Q26259 chironomus
41	39	54.9	340	5	Q94191	Q94191 caenorhabd
42	39	54.9	428	4	Q9Y3J2	Q9Y3J2 homo sapien
43	39	54.9	785	4	Q9ULD5	Q9ULD5 homo sapien
44	39	54.9	1037	5	Q9Y253	Q9Y253 drosophila
45	39	54.9	2169	11	Q9Z305	Q9Z305 cavia porce

ALIGNMENTS

RESULT 1	Q9UH58	PRELIMINARY;	PRT;	147 AA.
ID	Q9UH58;			
AC	Q9UH58;			
DT	01-MAY-2000 (TREMBLrel. 13, Created)			
DT	01-MAY-2000 (TREMBLrel. 13, Last sequence update)			
DT	01-JUN-2000 (TREMBLrel. 14, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR ISOFORM 121 PRECURSOR.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RA	Sato J.D., Whitney R.G.;			
RT	"Human CDNA for vascular endothelial growth factor isoform VEGF121.";			
RL	Submitted (DEC-1999) to the EMBL/Genbank/DBJ databases.			
DR	EMBL; AF214570; AAF19659.1; -			
DR	INTERPRO: IPR009072; -			
DR	PFAM; PF00341; PDGF; 1.			
DR	PROSITE; PS00249; PDGF; 1.			
DR	KW Signal.			
FT	SIGNAL.			
SO	SEQUENCE	1	26	POTENTIAL.
		147 AA;	17219 MW;	DDF4D694249BED6 CRC64;
Query Match	93.0%;	Score 66;	DB 4;	Length 147;
Best Local Similarity	92.3%;	Pred. No. 0.00016;		
Matches 12;	Conservative	0;	Mismatches 1;	Indels 0;
QY	1 CNDGLESVPTEE 13			
DB	87 CNDGLESVPTEE 99			
RESULT 2	Q9UL23	PRELIMINARY;	PRT;	174 AA.
ID	Q9UL23;			
AC	Q9UL23;			
DT	01-MAY-2000 (TREMBLrel. 13, Created)			
DT	01-MAY-2000 (TREMBLrel. 13, Last sequence update)			
DT	01-JUN-2000 (TREMBLrel. 14, Last annotation update)			
DE	VASCULAR PERMEABILITY FACTOR 148.			

```

OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=GLOMERULI;
RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.M.,
RA Harper S.J.,
RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA
RT and receptor mRNA expression in human glomeruli, and the
RT identification of VEGF148 mRNA, a novel truncated splice variant.";
RL Clin. Sci. 97:303-312(1999).
DR EMBL: AF091352; AAD5345.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
SQ SEQUENCE 174 AA; 20218 MW; AE88400CA757644 CRC64;

Query Match          93.0%; Score 66; DB 4; Length 174;
Best Local Similarity 92.3%; Pred. No. 0.00019;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13
Db 87 CNDEGLECVPTTEE 99

RESULT 3
Q9XSF3 PRELIMINARY; PRT; 190 AA.
AC Q9XSF3;
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 164.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Jingjing L., Roque R.S.;
RA Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF133248; AAD29682.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22292 MW; 2053500BC9085CE0 CRC64;

Query Match          93.0%; Score 66; DB 6; Length 190;
Best Local Similarity 92.3%; Pred. No. 0.00021;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13
Db 86 CNDEGLECVPTTEE 98

RESULT 4
Q9XSF4 PRELIMINARY; PRT; 208 AA.
AC Q9XSF4;
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 182.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.

```

```

RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=HEART;
RA Jingjing L., Roque R.S.;
RA Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL: AF133249; AAD29683.1; -.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
SQ SEQUENCE 208 AA; 24400 MW; CF77AC591F5C2BBE CRC64;

Query Match          93.0%; Score 66; DB 6; Length 208;
Best Local Similarity 92.3%; Pred. No. 0.00023;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13
Db 86 CNDEGLECVPTTEE 98

RESULT 5
Q060720 PRELIMINARY; PRT; 209 AA.
ID Q060720;
AC Q060720;
DT 01-AUG-1998 (TREMBlrel. 07, Created)
DT 01-MAY-1999 (TREMBlrel. 10, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VEGF183 PROTEIN PRECURSOR (VASCULAR ENDOTHELIAL GROWTH FACTOR 183).
GN VEGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=KIDNEY;
RA MEDLINE: 99096474.
RA lei J., Jiang A., Pei D.;
RT "Identification and characterization of a new splicing variant of
RT vascular endothelial growth factor: VEGF183.";
RN Blochm. Biophys. Acta, Gene Struct. Expr. 1443:400-406(1998).
RN [2]
RP SEQUENCE OF 114-209 FROM N.A.
RC TISSUE=RETINA;
RA Jingjing L., Roque R.S.;
RA Submitted (MAR-1998) to the EMBL/GenBank/DBJ databases.
DR EMBL: AJ010438; CAA09179.1; -.
DR EMBL: AF062645; AAC16730.1; -.
DR HSSP: P15692; 2VPE.
DR INTERPRO: IPR000072; -.
DR PFAM: PF00341; PDGF; 1.
DR PROSITE: PS00249; PDGF; 1.
DR PRODOM: PD001629; -. 1.
KW SIGNAL.
FT CHAIN 1 26 POTENTIAL.
FT SIGNAL 27 209 VEGF183 PROTEIN.
SQ SEQUENCE 209 AA; 24422 MW; F01CCAC945D6CA CRC64;

Query Match          93.0%; Score 66; DB 4; Length 209;
Best Local Similarity 92.3%; Pred. No. 0.00024;
Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 CNDEGLSEVPTEE 13
Db 87 CNDEGLECVPTTEE 99

RESULT 6
Q9XSF5 PRELIMINARY; PRT; 214 AA.
ID Q9XSF5;
AC Q9XSF5;
DT 01-NOV-1999 (TREMBlrel. 12, Created)

```


DT 01-NOV-1999 (TREMblrel. 12, last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR 188.
 GN VEGF.
 OS Canis familiaris (Dog).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=HEART;
 RA Jijing L., Roque R.S.;
 RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF133250; AAD29684.1; -
 DR INTERPRO: IPR000072; -
 DR PFAM; PF00341; PDGF; 1.
 DR PROSITE; PS00249; PDGF; 1.
 SQ SEQUENCE 214 AA; 25151 MW; 2269981AFBC60058 CRC64;

Query Match 93.0%; Score 66; DB 6; Length 214;
 Best Local Similarity 92.3%; Pred. No. 0.00024;
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTTE 13
 ||||| |||||
 DB 86 CNDEGLSVPTTE 98

RESULT 7
 ID 016889 PRELIMINARY; PRT: 254 AA.
 AC 016889;
 DT 01-NOV-1998 (TREMblrel. 01, Created)
 DT 01-NOV-1998 (TREMblrel. 08, last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
 GN VEGF 206.
 OS Homo sapiens (Human).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 92168017.
 RA Houck K.A., Ferrara N., Miner J., Cachianes G., Li B., Leung D.W.;
 RT "The vascular endothelial growth factor family: identification of a
 RT fourth molecular species and characterization of alternative splicing
 RT of RNA.";
 RL Mol. Endocrinol. 5:1806-1814(1991).
 DR EMBL; S85192; AAC63102.1; -
 DR EMBL; S85224; AAC63101.1; -
 DR EMBL; S85199; AAC63101.1; JOINED.
 DR EMBL; S85201; AAC63101.1; JOINED.
 DR EMBL; S85219; AAC63101.1; JOINED.
 DR EMBL; S85222; AAC63101.1; JOINED.
 DR HSSP; P15692; 2VPF.
 DR INTERPRO: IPR000072; -
 DR PFAM; PF00341; PDGF; 1.
 DR PROSITE; PS00249; PDGF; 1.
 FT NON_TER 1
 SQ SEQUENCE 254 AA; 29461 MW; 069DFE9B9723DBA8 CRC64;

Query Match 93.0%; Score 66; DB 4; Length 254;
 Best Local Similarity 92.3%; Pred. No. 0.00029;
 Matches 12; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTTE 13
 ||||| |||||
 DB 109 CNDEGLSVPTTE 121

RESULT 8
 097500

ID 097500 PRELIMINARY; PRT: 68 AA.
 AC 097500;
 DT 01-MAY-1999 (TREMblrel. 10, Created)
 DT 01-MAY-1999 (TREMblrel. 10, last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
 GN VEGF.
 OS Oryctolagus cuniculus (Rabbit).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Inoue K., Kawabe Y., Kodama T.;
 RT "Rabbit VEGF cDNA, partial";
 RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AB020216; BAA36949.1; -
 DR HSSP; P15692; 1VPF.
 DR INTERPRO: IPR000072; -
 DR PFAM; PF00341; PDGF; 1.
 DR PROSITE; PS00249; PDGF; 1.
 FT NON_TER 1
 FT NON_TER 1
 SQ SEQUENCE 68 AA; 7819 MW; 687638661E98DEE0 CRC64;

Query Match 84.5%; Score 60; DB 6; Length 68;
 Best Local Similarity 84.6%; Pred. No. 0.00084;
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTTE 13
 ||||| |||||
 DB 41 CNDEGLSVPTTE 53

RESULT 9
 ID 018843 PRELIMINARY; PRT: 75 AA.
 AC 018843;
 DT 01-JAN-1998 (TREMblrel. 05, Created)
 DT 01-JAN-1998 (TREMblrel. 05, last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
 GN VEGF.
 OS Oryctolagus cuniculus (Rabbit).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC SPRAIN-WHITE NEW ZEALAND; TISSUE=SKELLETAL MUSCLE;
 RX MEDLINE; 98191144.
 RA Skorjanc D., Jaschinski F., Heine G., Pette D.;
 RT "Sequential increases in capillarization and mitochondrial enzymes in
 RT low-frequency-stimulated rabbit muscle.";
 RL Am. J. Physiol. 274:0-0(1998).
 DR EMBL; AF022179; AAC15469.1; -
 DR HSSP; P15692; 1VPF.
 DR INTERPRO: IPR000072; -
 DR PFAM; PF00341; PDGF; 1.
 DR PROSITE; PS00249; PDGF; 1.
 FT NON_TER 1
 FT NON_TER 1
 SQ SEQUENCE 75 AA; 8720 MW; DDCE2C5B29E69359 CRC64;

Query Match 84.5%; Score 60; DB 6; Length 75;
 Best Local Similarity 84.6%; Pred. No. 0.00093;
 Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTTE 13
 ||||| |||||
 DB 29 CNDEGLSVPTTE 41

RESULT 10
09YMF3 PRELIMINARY; PRT; 132 AA.
ID 09YMF3;
AC 01-MAY-1999 (TREMBlrel. 10, Created)
DT 01-MAY-1999 (TREMBlrel. 10, last sequence update)
DE 01-JUN-2000 (TREMBlrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR HOMOLOG VEGF-E.
OS orf virus.
OC viruses; dsDNA viruses, no RNA stage; Poxviridae; Chordopoxvirinae;
OC Parapoxvirus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-D1701:
RX MEDLINE; 99107753.
RA Meyer M., Clauss M., Lepple-Wienhues A., Waltenberger J.,
Augustin H.G., Ziche M., Lanz C., Buettner M., Rziha H.J., Dehio C.;
RT "A novel vascular endothelial growth factor encoded by orf virus,
VEGF-E, mediates angiogenesis via signalling through VEGFR-2 (KDR) but
not VEGFR-1 (Flt-1) receptor tyrosine kinases.";
RL EMBL J.18:363-374(1999).
DR EMBL; AF106020; AAD03735.1; .
DR HSSP; P15692; IVP.
DR INTERPRO; IPR000072; .
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR PRODOM; PD001629; .; 1.
SQ SEQUENCE 132 AA; 14763 MW; 15F403A068B72926 CRC64;

Query Match 84.5%; Score 60; DB 12; Length 132;
Best Local Similarity 84.6%; Pred. No. 0.0018;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLESVPTTE 13
|||||
DB 70 CNDEGLECVPTTE 82

RESULT 11
077643 PRELIMINARY; PRT; 190 AA.
ID 077643;
AC 01-NOV-1998 (TREMBlrel. 08, Created)
DT 01-NOV-1998 (TREMBlrel. 08, last sequence update)
DE 01-JUN-2000 (TREMBlrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-COLUMBIA-RAMBOUTLIER;
RA Cheng C.Y., Brace R.A.;
RT "Ovine vascular endothelial growth factor: Nucleotide sequence and
expression in fetal tissues.";
RL Growth Factors 0:0-0(1998).
DR EMBL; AF071015; AAC23608.1; .
DR HSSP; P15692; 2VGH.
DR INTERPRO; IPR000072; .
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR PRODOM; PD001629; .; 1.
SQ SEQUENCE 190 AA; 22342 MW; 0D5E3B3E5C53E739 CRC64;

Query Match 84.5%; Score 60; DB 6; Length 190;
Best Local Similarity 84.6%; Pred. No. 0.0026;
Matches 11; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLESVPTTE 13

DB 86 CNDEGLECVPTTE 98
|||||

RESULT 12
075875 PRELIMINARY; PRT; 191 AA.
ID 075875;
AC 01-NOV-1998 (TREMBlrel. 08, Created)
DT 01-NOV-1998 (TREMBlrel. 08, last sequence update)
DE 01-JUN-2000 (TREMBlrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-BREAST;
RX MEDLINE; 98119755.
RA Claffey K.P., Sliha S.-C., Mullen A., Dzelenis S., Cusick J.L.,
Abrams K.R., Lee S.W., Decmar M.;
RT "Identification of a human VEGF 3' untranslated region mediating
hypoxia-induced mRNA stability.";
RL Mol. Biol. Cell 9:469-481(1998).
DR EMBL; AF022375; AAC63143.1; .
DR HSSP; P15692; IVP.
DR INTERPRO; IPR000072; .
DR PFAM; PF00341; PDGF; 1.
DR PRODOM; PD001629; .; 1.
SQ SEQUENCE 191 AA; 22320 MW; B5E435838C72715B CRC64;

Query Match 80.3%; Score 57; DB 4; Length 191;
Best Local Similarity 91.7%; Pred. No. 0.0093;
Matches 11; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 NDEGLESVPTTE 13
|||||
DB 88 NDEGLECVPTTE 99

RESULT 13
088911 PRELIMINARY; PRT; 110 AA.
ID 088911;
AC 01-NOV-1998 (TREMBlrel. 08, Created)
DT 01-NOV-1998 (TREMBlrel. 08, last sequence update)
DE 01-JUN-2000 (TREMBlrel. 14, last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR A 110 PRECURSOR (FRAGMENT).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY; TISSUE-PENIS;
RA Burchardt M., Burchardt T., Chen M.-W., Shabsigh A., de la Taille A.,
Buttayan R., Shatsign R.;
RT "Expression of messenger RNA splice variants for Vascular Endothelial
RT Growth Factor in the Adult Rat and Human Penis.";
RL Submitted (JUL-1998) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF080594; AAC36708.1; .
DR HSSP; P15692; IVP.
DR INTERPRO; IPR000072; .
DR PFAM; PF00341; EDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR NON TER 1
FT 1
SQ SEQUENCE 110 AA; 12713 MW; B81B79AC08D89F06 CRC64;

Query Match 77.5%; Score 55; DB 11; Length 110;
Best Local Similarity 76.9%; Pred. No. 0.012;
Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTPE 13
 ||||| 11111
 Db 60 CNDEALECVPTRSE 98

RESULT 14

070123 PRELIMINARY; PRT: 141 AA.
 AC 070123; 070123
 DT 01-AUG-1998 (TREMBlrel. 07, Created)
 DT 01-AUG-1998 (TREMBlrel. 07, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE VEGF115.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN-ICR:
 RX MEDLINE; 95101726.
 RA Sugihara T., Kaul S.C., Mitsui Y., Wadhwa R.;
 RT "Enhanced expression of multiple forms of VEGF is associated with
 RT spontaneous immortalization of murine fibroblasts.";
 RL Biochim. Biophys. Acta 1224:365-370(1994).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC STRAIN-ICR:
 RX MEDLINE; 98112857.
 RA Sugihara T., Wadhwa R., Kaul S.C., Mitsui Y.;
 RT "A novel alternatively spliced form of murine vascular endothelial
 RT growth factor, VEGF 115.";
 RL J. Biol. Chem. 273:3033-3038(1998).
 DR EMBL; U50279; AAC05442.1; -.
 DR HSSP; P15692; IVP.
 DR INTERPRO; IPR000072; -.
 DR PFAM; PF00341; PDGF; 1.
 DR PROSITE; PS00249; PDGF; 1.
 DR PRODOR; PD001629; -1.
 SQ SEQUENCE 141 AA; 15550 MW; A27C4E5FA7071338 CRC64;

Query Match 77.5%; Score 55; DB 13; Length 141;
 Best Local Similarity 76.9%; Pred. No. 0.015;
 Matches 10; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTPE 13
 ||||| 11111
 Db 86 CNDEALECVPTRSE 98

RESULT 15

073822 PRELIMINARY; PRT: 144 AA.
 AC 073822;
 DT 01-AUG-1998 (TREMBlrel. 07, Created)
 DT 01-AUG-1998 (TREMBlrel. 07, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR 121 ISOFORM.
 GN VEGF.
 OS Brachydanio rerio (zebrafish) (zebra danio).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Ostariophysi;
 OC Cypriniformes; Cyprinidae; Cyprinidae; Rasbora; Danio.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Liang D., Ge R.;
 RL Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF059661; AAC14713.1; -.
 DR HSSP; P15692; IVP.
 DR INTERPRO; IPR000072; -.
 DR PFAM; PF00341; PDGF; 1.
 DR PROSITE; PS00249; PDGF; 1.

DR PRODOR; PD001629; -1.
 SQ SEQUENCE 144 AA; 16479 MW; 303E6A7407AA0832 CRC64;

Query Match 77.5%; Score 55; DB 13; Length 144;
 Best Local Similarity 83.3%; Pred. No. 0.016;
 Matches 10; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

OY 1 CNDEGLSVPTPE 12
 ||||| 11111
 Db 84 CNDEALECVPTRSE 95

Search completed: November 9, 2000, 15:39:39
 Job Time: 616 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:32:03 ; Search time 72.39 Seconds

(without alignments)
14.026 Million cell updates/sec

Title: US-09-266-543-9

Perfect score: 86

Sequence: 1 CESNITMQIMRIKPH 16

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 182106 seqs, 63460219 residues

Total number of hits satisfying chosen parameters: 182106

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	77	89.5	232	2 A41551	vascular endothel
2	72	83.7	190	2 B44881	vascular endothel
3	72	83.7	214	2 A44881	vascular endothel
4	71	82.6	120	2 A33787	vascular endothel
5	71	82.6	146	2 S57956	ovine vascular end
6	71	82.6	190	2 S52130	vascular endothel
7	71	82.6	190	2 B40080	vascular endothel
8	71	82.6	190	2 A35987	glioma-derived vas
9	53	61.6	128	2 I51295	vascular endothel
10	46	53.5	1011	2 T13669	neuromsculin - fr
11	45	52.3	158	2 A56125	placental growth f
12	45	52.3	1788	2 T28043	hypothetical prote
13	43	50.0	450	2 T38465	probable dolichyl-
14	42	48.8	865	2 S69044	hypothetical prote
15	41	47.7	149	2 A4236	placental growth f
16	40	46.5	598	2 S28712	heat shock protein
17	40	46.5	787	2 S09411	DNA translocase sp
18	40	46.5	1265	2 T47626	structural mainten
19	39	45.3	316	2 D69692	riboflavin kinase
20	39	45.3	598	2 S34203	heat shock protein
21	39	45.3	674	2 T28274	ORF MSY113 probabl
22	39	45.3	5232	2 A45086	HC-toxin synthetas
23	38	44.2	255	2 D69255	GDP-D-mannose dehy
24	38	44.2	291	2 A69878	conserved hypothet
25	38	44.2	401	1 C71310	conserved hypothet
26	38	44.2	566	2 A36881	MPM2-reactive phos
27	38	44.2	716	2 G64816	probable ATP-depen
28	38	44.2	863	2 A53034	gag polyprotein -
29	38	44.2	889	2 T33422	hypothetical prote

30	38	44.2	1170	2 I45914	integrin alpha 2 s
31	38	44.2	1206	2 T46451	hypothetical prote
32	38	44.2	1780	2 T17272	hypothetical prote
33	38	44.2	3066	1 J01661	genome polypeptid
34	38	44.2	3066	1 J01661	genome polypeptid
35	37	43.0	109	2 B72213	conserved hypothet
36	37	43.0	155	1 M6M143	E6 protein - human
37	37	43.0	609	2 S28283	hypothetical prote
38	37	43.0	790	2 T22849	hypothetical prote
39	37	43.0	868	2 T25716	hypothetical prote
40	37	43.0	964	2 T32482	hypothetical prote
41	37	43.0	1121	2 T25715	hypothetical prote
42	37	43.0	3097	2 T00021	DN-cadherin - frui
43	36	41.9	120	2 E81429	dksA-like protein
44	36	41.9	149	2 G64414	hypothetical prote
45	36	41.9	155	2 T33305	hypothetical prote

ALIGNMENTS

RESULT 1
A41551
vascular endothelial growth factor 206 precursor - human
N:Alternate names: vascular permeability factor
M:Contains: vascular endothelial growth factor 121 (VEGF 121); VEGF 165; VEGF 189; VE
C:Species: Homo sapiens (man)
C:Date: 28-Aug-1992 #sequence_revision 28-Aug-1992 #text_change 05-Nov-1999
C:Accession: A41551; C41551; B41551; A40454; B40454; C40454; A40079; A40080; J01463;
R:Houck, K.A.; Ferrara, N.; Winer, J.; Cachianes, G.; Li, B.; Lenny, D.W.
Mol. Endocrinol. 5, 1806-1814, 1991
M:Title: The vascular endothelial growth factor family: identification of a fourth mo
A:Reference number: A41551; MUID:92168017
A:Accession: A41551
A:Molecule type: mRNA
A:Residues: 1-232 <HDU1>
A:Cross-references: GB:S85192; NID:g246155; PID:g246156
A:Accession: C41551
A:Status: nucleic acid sequence not shown
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <HDU2>
A:Accession: B41551
A:Status: nucleic acid sequence not shown; not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-141, 227-232 <HDU>
R:Ritscher, E.; Mitchell, R.; Hartman, T.; Silva, M.; Gospodarowicz, D.; Fiddes, J.C.;
J. Biol. Chem. 266, 11947-11954, 1991
A:Title: The human gene for vascular endothelial growth factor. Multiple protein form
A:Reference number: A40454; MUID:91268072
A:Accession: A40454
A:Molecule type: DNA
A:Residues: 1-140, 'N', 183-232 <HDU2>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63976;
A:Accession: B40454
A:Molecule type: DNA
A:Residues: 1-141, 227-232 <HDU3>
A:Cross-references: GB:M63971; GB:M63972; GB:M63973; GB:M63974; GB:M63975; GB:M63978
R:Reck, P.J.; Hauser, S.D.; Krivt, G.; Sanzo, K.; Warren, T.; Feder, J.; Connolly, D.
Science 246, 1309-1312, 1989
A:Title: Vascular permeability factor, an endothelial cell mitogen related to PDGF.
A:Reference number: A40079; MUID:90069609
A:Accession: A40079
A:Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-165, 183-232 <KEC>
A:Cross-references: GB:M27281; NID:g340300; PIDN:AAA36807.1; PID:g340301
R:Lienig, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.

A:Reference number: A40080; MUID:90069608
A:Accession: A40080
A>Status: not compared with conceptual translation
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <EUD>
A:CROSS-references: GB:M3977; NID:g181970; PIDN:AAA35789.1; PID:g181971
R:Weinzel, K.; Marne, D.; Weich, H.A.
Biochem. Biophys. Res. Commun. 183, 1167-1174, 1992
A:Title: AIDS-associated Kaposi's sarcoma cells in culture express vascular endothelial
A:Reference number: J01463; MUID:92231879
A:Accession: J01463
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 183-232 <MEI>
A:CROSS-references: EMBL:X62568; NID:g37658; PIDN:CAA44447.1; PID:g37659
A:Experimental source: AIDS-kaposi's sarcoma cell
A:Accession: J01464
A:Molecule type: mRNA
A:Residues: 1-140, 'N', 227-232 <WE2>
A:Experimental source: AIDS-kaposi's sarcoma cell
R:Connolly, D.F.; Olander, J.V.; Heuvelman, D.; Nelson, R.; Monsell, R.; Siegel, N.; Hay
J. Biol. Chem. 264, 20017-20024, 1989
A:Title: Human vascular permeability factor. Isolation from U937 cells.
A:Reference number: A34492; MUID:90062112
A:Accession: A34492
A:Molecule type: protein
A:Residues: 27-36; 43-49, 'R', 72-76, 'Q', 78-81; 59-71 <CON>
C:Comment: The most common of several alternatively spliced forms is VEGF 165.
C:Genetics:
A:Gene: GDB:VEGF
A:CROSS-references: GDB:132244; OMIM:192240
A:Map position: 6p21-6p12
C:Function:
A:Description: promotes fluid and protein leakage from blood vessels
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; extracellular pro
F:1-352/Product: vascular endothelial growth factor 206 precursor #status predicted <V20
F:1-165, 183-232/Product: vascular endothelial growth factor 189 precursor #status predic
F:1-141, 227-232/Product: vascular endothelial growth factor 121 precursor #status predic
F:1-26/Domain: signal sequence #status predicted <SIG>
F:101/Binding site: carbohydrate (asn) (covalent) #status predicted

Query Match 89.5%; Score 77; DB 2; Length 232;
Best Local Similarity 100.0%; Pred. No. 1.1e-06;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 ESNITMQRKPH 16
DB 98 ESNITMQRKPH 112

RESULT 2
B44881
Vascular endothelial growth factor-1 precursor - mouse
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text_change 05-Nov-1999
C:Accession: B44881; A43351; A61029
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenesis
A:Reference number: A44881; MUID:92274860
A:Accession: B44881
A:Molecule type: mRNA
A:Residues: 1-190 <BRE>
A:CROSS-references: GB:S38083; NID:g249858; PIDN:AA22253.1; PID:g249859
A:Experimental source: embryo
A>Note: sequence extracted from NCBI backbone (NCBIN:107622, NCBIIP:107623)
R:Claffey, K.P.; Wilkison, W.O.; Spiegelman, B.M.
J. Biol. Chem. 267, 16247-16322, 1992
A:Title: Vascular endothelial growth factor. Regulation by cell differentiation and acti
A:Reference number: A43351; MUID:92355593
A:Accession: A43351
A:Molecule type: mRNA
A:Residues: 1-116, 'ER', 119-190 <CLA>

A:CROSS-references: GB:M95200; NID:g202350; PIDN:AAA04547.1; PID:g202351
A>Note: sequence extracted from NCBI backbone (NCBIN:110655, NCBIIP:110675)
R:Rosenthal, R.A.; Megyesi, J.F.; Henzel, W.J.; Ferrara, N.; Folkman, J.
Growth Factors 4, 53-59, 1990
A:Title: Conditioned medium from mouse sarcoma 180 cells contains vascular endothelia
A:Reference number: A61029; MUID:91197543
A:Accession: A61029
A:Molecule type: protein
A:Residues: 27-38 <ROS>
C:Keywords: alternative splicing; angiogenesis; dimer; disulfide bond; glycoprotein;

Query Match 83.7%; Score 72; DB 2; Length 190;
Best Local Similarity 100.0%; Pred. No. 7.5e-06;
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 3 ESNITMQRKPH 16
DB 98 ESNITMQRKPH 111

RESULT 3
A44881
Vascular endothelial growth factor-3 precursor - mouse
N:Contains: vascular endothelial growth factor-2; vascular permeability factor
C:Species: Mus musculus (house mouse)
C:Date: 03-Feb-1994 #sequence revision 03-Feb-1994 #text_change 08-Oct-1999
C:Accession: A44881; C44881; A60932; S52136
R:Breier, G.; Albrecht, U.; Sterrer, S.; Risau, W.
Development 114, 521-532, 1992
A:Title: Expression of vascular endothelial growth factor during embryonic angiogenes
A:Reference number: A44881; MUID:92274860
A:Accession: A44881
A:Molecule type: mRNA
A:Residues: 1-140, 209-214 <BR2>
A:CROSS-references: GB:S38100; NID:g249860; PIDN:AA22254.1; PID:g249861
A>Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBIIP:107625)
A:Experimental source: embryo
A:Note: sequence extracted from NCBI backbone (NCBIN:104677, NCBIIP:104678)
A:Accession: C44881
A:Molecule type: mRNA
A:Residues: 1-140, 209-214 <BR2>
A:CROSS-references: GB:S38100; NID:g249860; PIDN:AA22254.1; PID:g249861
A>Note: sequence extracted from NCBI backbone (NCBIN:107624, NCBIIP:107625)
R:Clause, M.; Gerlach, M.; Gerlach, H.; Brett, J.; Wang, F.; Familletti, P.C.; Pan, Y
J. Exp. Med. 172, 1535-1545, 1990
A:Title: Vascular permeability factor: a tumor-derived polypeptide that induces enco
A:Reference number: A60932; MUID:91079755
A:Accession: A60932
A:Molecule type: protein
A:Residues: 27-33 <CLA>
R:Sugihara, T.; Kaul, S.C.; Mitsui, Y.; Wadhwa, R.
Biochim. Biophys. Acta 1224, 365-370, 1994
A:Title: Enhanced expression of multiple forms of VEGF is associated with spontaneous
A:Reference number: S52136; MUID:95101726
A:Accession: S52136
A>Status: preliminary
A:Molecule type: protein
A:Residues: 27-46 <SIG>
C:Comment: Homodimers could be demonstrated for recombinant VEGF-2 but not VEGF-3.
C:Keywords: alternative splicing; angiogenesis; disulfide bond; glycoprotein; homodim
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-214/Product: vascular endothelial growth factor-3 #status experimental <MAT>

Query Match 83.7%; Score 72; DB 2; Length 214;
Best Local Similarity 100.0%; Pred. No. 8.5e-06;
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 3 ESNITMQRKPH 16
DB 98 ESNITMQRKPH 111

```

RESULT 4
A33787
Vascular endothelial growth factor (version 1) - bovine
C:Species: Bos primigenius taurus (cattle)
C:Date: 16-Mar-1990 #sequence_revision 16-Mar-1990 #text_change 05-Nov-1999
C:Accession: A33787
R:Titelcher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Crist
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived growth
A:Reference number: A33787; MUID:90121225
A:Accession: A33787
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-120 <TIS>
A:Cross-references: GB:M33750; NID:g163810; PIDN:AAA30805.1; PID:g163811
C:Keywords: alternative splicing

Query Match      82.6%; Score 71; DB 2; Length 120;
Best Local Similarity 93.3%; Pred. No. 7,1e-06;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIMRIKPH 16
|||
Db 97 EFNITMOIMRIKPH 85

RESULT 5
S57956
ovine vascular endothelial growth factor - sheep
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C:Date: 13-Jan-1996 #sequence_revision 01-Mar-1996 #text_change 05-Nov-1999
C:Accession: S57956
R:Reimer, D.A.; Dai, Y.; Li, J.; Jones, S.C.; Moor, R.M.
submitted to the EMBL Data Library, July 1995
A:Reference number: S57956
A:Accession: S57956
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-146 <RED>
A:Cross-references: EMBL:X89506; NID:g899350; PIDN:CAA61677.1; PID:g899351

Query Match      82.6%; Score 71; DB 2; Length 146;
Best Local Similarity 93.3%; Pred. No. 8,7e-06;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIMRIKPH 16
|||
Db 97 EFNITMOIMRIKPH 111

RESULT 6
S52130
vascular endothelial growth factor - pig
C:Species: Sus scrofa domestica (domestic pig)
C:Date: 14-Jul-1995 #sequence_revision 21-Jul-1995 #text_change 05-Nov-1999
C:Accession: S52130
R:Sharma, H.S.; Tang, Z.H.; Gho, B.C.G.; Verdouw, P.D.
Biochim. Biophys. Acta 1260, 235-238, 1995
A:Title: Nucleotide sequence and expression of the porcine vascular endothelial growth f
A:Reference number: S52130; MUID:95143284
A:Accession: S52130
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <SHA>
A:Cross-references: GB:X81380; NID:g587559; PIDN:CAA57143.1; PID:g587560

Query Match      82.6%; Score 71; DB 2; Length 190;
Best Local Similarity 93.3%; Pred. No. 1,1e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```

```

QY 2 ESNITMOIMRIKPH 16
|||
Db 97 EFNITMOIMRIKPH 111

RESULT 7
B40080
Vascular endothelial growth factor precursor (version 2) - bovine
C:Species: Bos primigenius taurus (cattle)
C:Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 05-Nov-1999
C:Accession: B40080; B33787; A33255
R:Leung, D.W.; Cachianes, G.; Kuang, W.J.; Goeddel, D.V.; Ferrara, N.
Science 246, 1306-1309, 1989
A:Title: Vascular endothelial growth factor is a secreted angiogenic mitogen.
A:Reference number: A40080; MUID:90069608
A:Accession: B40080
A:Molecule type: mRNA
A:Residues: 1-190 <LEU>
A:Cross-references: GB:M32976; NID:g163006; PIDN:AAA30502.1; PID:g163007
R:Titelcher, E.; Gospodarowicz, D.; Mitchell, R.; Silva, M.; Schilling, J.; Lau, K.; Cr
Biochem. Biophys. Res. Commun. 165, 1198-1206, 1989
A:Title: Vascular endothelial growth factor: a new member of the platelet-derived gro
A:Reference number: A33787; MUID:90121225
A:Accession: B33787
A:Molecule type: mRNA
A:Residues: 27-190 <TIS>
A:Cross-references: GB:M31836; NID:g163808; PIDN:AAA30804.1; PID:g163809
R:Ferrara, N.; Henzel, W.J.
Biochem. Biophys. Res. Commun. 161, 851-858, 1989
A:Title: Pituitary follicular cells secrete a novel heparin-binding growth factor spe
A:Reference number: A33255; MUID:89286596
A:Accession: A33255
A:Molecule type: protein
A:Residues: 27-31 <FER>
C:Keywords: alternative splicing; glycoprotein
F:1-26/Domain: signal sequence #status predicted <SIG>
F:27-190/Product: vascular endothelial growth factor #status predicted <MAT>
F:100/Binding site: carbohydrate (Asn) (covalent) #status predicted

Query Match      82.6%; Score 71; DB 2; Length 190;
Best Local Similarity 93.3%; Pred. No. 1,1e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIMRIKPH 16
|||
Db 97 EFNITMOIMRIKPH 111

RESULT 8
A35987
glioma-derived vascular endothelial cell growth factor - rat
C:Species: Rattus norvegicus (Norway rat)
C:Date: 16-Nov-1990 #sequence_revision 16-Nov-1990 #text_change 05-Nov-1999
C:Accession: A35987
R:Conn, G.; Bayne, M.L.; Soderman, D.D.; Kwok, P.W.; Sullivan, K.A.; Palis, T.M.; Ho
Proc. Natl. Acad. Sci. U.S.A. 87, 2628-2632, 1990
A:Title: Amino acid and cDNA sequences of a vascular endothelial cell mitogen that is
A:Reference number: A35987; MUID:90207249
A:Accession: A35987
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-190 <CON>
A:Cross-references: GB:M32167; NID:g204287; PIDN:AAA41211.1; PID:g204288

Query Match      82.6%; Score 71; DB 2; Length 190;
Best Local Similarity 92.9%; Pred. No. 1,1e-05;
Matches 13; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 3 ESNITMOIMRIKPH 16
|||
Db 98 ESNITMOIMRIKPH 111

```

RESULT 9

151295
 Vascular endothelial growth factor - quail (fragment)
 C:Species: Phasianidae gen. sp. (quail)
 C:Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 28-Feb-1997
 C:Accession: I51295
 R:Flamme, I.; Breier, G.; Risau, W.
 Dev. Biol. 169, 699-712, 1995
 A:Title: Vascular endothelial growth factor (VEGF) and VEGF receptor 2 (flk-1) are expressed in the developing chick chorioallantoic membrane
 A:Reference number: I51295; MUID:95301109
 A:Accession: I51295
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: DNA
 A:Residues: 1-128 <FLN>
 A:Cross-references: GB:S78343; NID:9999147; PID:9999148
 C:Genetics:
 A:Gene: VEGF

Query Match 61.6%; Score 53; DB 2; Length 128;
 Best Local Similarity 75.0%; Pred. No. 0.016;
 Matches 9; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

OY 5 NITMOIMRIKPH 16
 |||||:|||||
 DB 42 NITMEIARIKPH 53

RESULT 10

113669
 neuromusculin - fruit fly (Drosophila melanogaster)
 C:Species: Drosophila melanogaster
 C:Date: 13-Aug-1999 #sequence_revision 13-Aug-1999 #text_change 13-Aug-1999
 C:Accession: T13669
 R:Kanla, A.; Han, P.L.; Kim, Y.T.; Bellen, H.
 Neuron 11, 673-687, 1993
 A:Title: Neuromusculin, a Drosophila gene expressed in peripheral neuronal precursors and in the central nervous system
 A:Reference number: Z17697; MUID:94000831
 A:Accession: T13669
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 1-1011 <KAN>
 A:Cross-references: EMBL:L23146; NID:9385073; PID:9385074; PIDN:AAA03750.1
 C:Genetics:
 A:Gene: nrm

Query Match 53.5%; Score 46; DB 2; Length 1011;
 Best Local Similarity 60.0%; Pred. No. 2.8;
 Matches 9; Conservative 1; Mismatches 5; Indels 0; Gaps 0;

OY 1 CEESNITMOIMRIKPH 15
 |||||:|||||
 DB 347 CEANITVQINREKPH 361

RESULT 11

A56125
 Placental growth factor precursor - rat
 C:Species: Rattus norvegicus (Norway rat)
 C:Date: 19-Oct-1995 #sequence_revision 19-Oct-1995 #text_change 05-Nov-1999
 C:Accession: A56125
 R:Disalvo, J.; Bayne, M.L.; Conn, G.; Kwok, P.W.; Trivedi, P.G.; Soderman, D.D.; Palisi, J. Biol. Chem. 270, 7717-7723, 1995
 A:Title: Purification and characterization of a naturally occurring vascular endothelial growth factor from rat placenta
 A:Reference number: A56125; MUID:95221439
 A:Accession: A56125
 A:Status: preliminary; not compared with conceptual translation
 A:Molecule type: mRNA
 A:Residues: 1-158 <DIS>
 A:Cross-references: GB:LA0030; NID:91263413; PIDN:AAA97426.1; PID:91263414

C:Keywords: glycoprotein

Query Match 52.3%; Score 45; DB 2; Length 158;
 Best Local Similarity 61.5%; Pred. No. 0.62;
 Matches 8; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

OY 4 SNITMOIMRIKPH 16
 :|||||:|||||
 DB 96 ANITMOILKIPPN 108

RESULT 12

T29043
 Hypothetical protein B0228.2 - Caenorhabditis elegans
 C:Species: Caenorhabditis elegans
 C:Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 15-Oct-1999
 C:Accession: T29043
 R:Leimbach, D.
 Submitted to the EMBL Data Library, March 1995
 A:Description: The sequence of C. elegans cosmid B0228.
 A:Reference number: Z18324
 A:Accession: T29043
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: DNA
 A:Residues: 1-1788 <LEI>
 A:Cross-references: EMBL:U23168; PIDN:AC38806.1; CESP:B0228.2
 A:Experimental source: Strain Bristol N2
 C:Genetics:
 A:Gene: CESP:B0228.2
 A:Introns: 1456/2; 1482/3; 1516/2; 1551/3; 1595/3; 1646/1; 1671/1; 1716/2; 1749/3

Query Match 52.3%; Score 45; DB 2; Length 1788;
 Best Local Similarity 50.0%; Pred. No. 7.9;
 Matches 8; Conservative 3; Mismatches 5; Indels 0; Gaps 0;

OY 1 CEESNITMOIMRIKPH 16
 |||||:|||||
 DB 1067 CEESTITVANKIEPH 1082

RESULT 13

T38465
 Probable dolichyl-diphosphooligosaccharide--protein glycotransferase (EC 2.4.1.119) a
 C:Species: Schizosaccharomyces pombe
 C:Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 03-Dec-1999
 C:Accession: T38465
 R:Harris, D.; McDonald, S.; Barrell, B.G.; Rajandream, M.A.; Walsh, S.V.
 Submitted to the EMBL Data Library, February 1996
 A:Reference number: Z21794
 A:Accession: T38465
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: DNA
 A:Residues: 1-450 <HAR>
 A:Cross-references: EMBL:Z69368; PIDN:CA93296.1; GSPDB:GN00066; SPDB:SPAC27F1.07
 A:Experimental source: Strain 972n-; cosmid c27F1
 C:Genetics:
 A:Gene: SPDB:SPAC27F1.07
 A:Map position: 1
 C:Keywords: glycosyltransferase; hexosyltransferase

Query Match 50.0%; Score 43; DB 2; Length 450;
 Best Local Similarity 53.3%; Pred. No. 4.4;
 Matches 8; Conservative 2; Mismatches 5; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
 |||||:|||||
 DB 287 EVGNITSHMEVEPH 301

RESULT 14

S69044
 hypothetical protein YPL141c - yeast (Saccharomyces cerevisiae)
 N:Alternate names: hypothetical protein LPI5
 C:Species: Saccharomyces cerevisiae
 C:Date: 22-Aug-1996 #sequence_revision 06-Sep-1996 #text_change 24-Sep-1999
 C:Accession: S69044
 R:Hall, J.; Depaulo, T.; Ahmed, A.; Bussey, H.; Fortin, N.; Friesen, J.D.; Storms, R.K.;
 submitted to the EMBL Data Library, December 1995
 A:Description: The sequence of Saccharomyces cerevisiae chromosome XVI left arm.
 A:Reference number: S69040
 A:Accession: S69044
 A:Molecule type: DNA
 A:Residues: 1-865 <NAL>
 A:Cross-references: EMBL:U43703; NID:g1244769; PIDN:AB68219.1; PID:g1244774; MIPS:YPL141c
 C:Genetics:
 A:Map position: 16L
 A:Note: YPL141c
 C:Superfamily: unassigned Ser/Thr or Tyr-specific protein kinases; protein kinase homolo
 C:Keywords: ATP
 F:39-313/Domain: protein kinase homology <KIN>
 F:47-55/Region: protein kinase ATP-binding motif

Query Match 48.8%; Score 42; DB 2; Length 865;
 Best Local Similarity 53.3%; Pred. No. 13;
 Matches 8; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
 |||:||||:|:
 Db 491 EESSTWQTSKIOPN 505

RESULT 15
 A41236
 Placental growth factor precursor - human
 C:Species: Homo sapiens (man)
 C:Date: 19-Jun-1992 #sequence_revision 19-Jun-1992 #text_change 05-Nov-1999
 C:Accession: A41236
 R:Maglione, D.; Guerriero, V.; Vigiiletto, G.; Delll-Bovl, P.; Persico, M.G.
 Proc. Natl. Acad. Sci. U.S.A. 88, 9267-9271, 1991
 A:Title: Isolation of a human placenta cDNA coding for a protein related to the vascular
 A:Reference number: A41236; MUID:92021031
 A:Accession: A41236
 A>Status: Preliminary
 A:Molecule type: mRNA
 A:Residues: 1-149 <MAG>
 A:Cross-references: GB:X54936; NID:g35521; PIDN:CAA38698.1; PID:g35522
 C:Genetics:
 A:Gene: GDB:PGF
 A:Cross-references: GDB:134676; OMIM:601121
 A:Map position: 14q24-14q31

Query Match 47.7%; Score 41; DB 2; Length 149;
 Best Local Similarity 46.2%; Pred. No. 3.2;
 Matches 6; Conservative 6; Mismatches 1; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIK 14
 |:||||:|:
 Db 98 ETANVTMQLLKIR 110

Search completed: November 9, 2000, 15:32:04
 Job time: 185 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:40:23 ; Search time 41.83 Seconds

(without alignments)
12.220 Million cell updates/sec

Title: US-09-266-543-9

Perfect score: 86

Sequence: 1 CEESNITMQRIRKPH 16

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 87993 seqs, 31947931 residues

Total number of hits satisfying chosen parameters: 87993

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database : SwissProt_39.*

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed,

and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	77	89.5	215	1	VEGF_HUMAN
2	72	83.7	214	1	VEGF_MOUSE
3	71	82.6	146	1	VEGF_SHEEP
4	71	82.6	164	1	VEGF_CAVPO
5	71	82.6	190	1	VEGF_BOVIN
6	71	82.6	190	1	VEGF_PIG
7	71	82.6	190	1	VEGF_RAT
8	53	61.6	216	1	VEGF_CHICK
9	45	52.3	158	1	PLGF_MOUSE
10	45	52.3	1788	1	YPT2_CABEL
11	44	51.2	1324	1	IRS2_HUMAN
12	43	50.0	450	1	OSTA_SCHPO
13	41	47.7	170	1	PLGF_HUMAN
14	40	46.5	598	1	HS7L_SBYV
15	40	46.5	787	1	SP3E_BACSU
16	39	45.3	316	1	RIBC_BACSU
17	39	45.3	5217	1	HTS1_COCOA
18	38	44.2	300	1	HAP2_KLEPA
19	38	44.2	401	1	THIT_TREPA
20	38	44.2	716	1	DING_ECOLI
21	38	44.2	1170	1	ITTA2_BOVIN
22	38	44.2	3066	1	POLG_SBYV
23	37	43.0	155	1	VE6_HPVA3
24	37	43.0	609	1	YKDB_CABEL
25	36	41.9	149	1	Y919_METJA
26	36	41.9	286	1	BYST_MOUSE
27	36	41.9	699	1	GALX_YEAST
28	36	41.9	968	1	Y682_YEAST
29	36	41.9	1038	1	BGAL_PSPAT
30	36	41.9	1126	1	V125_AWYLE
31	36	41.9	1443	1	DPO3_MYCPN
32	35.5	41.3	2515	1	TUD_DROME
33	35	40.7	178	1	VP12_MTVV

34	35	40.7	178	1	VP18_MTVNJ	P31612 wound tumor
35	35	40.7	265	1	HAP2_YEAST	P06774 saccharomyc
36	35	40.7	320	1	YG11_YEAST	P53156 saccharomyc
37	35	40.7	441	1	YAV4_SCHPO	O10173 schizosacch
38	35	40.7	1073	1	Y126_HUMAN	O14139 homo sapien
39	35	40.7	1577	1	MYSH_ACACA	P47808 acanthamoeb
40	35	40.7	1913	1	KMLS_HUMAN	O15746 homo sapien
41	34.5	40.1	894	1	DSCI_HUMAN	O08554 homo sapien
42	34	39.5	124	1	RNP_BALAC	P06673 balaenopter
43	34	39.5	154	1	VE6_HPVA0	P36800 human papil
44	34	39.5	154	1	VE6_HPVA0	P36812 human papil
45	34	39.5	176	1	LALP_MACCEU	P20462 macropus eu

ALIGNMENTS

RESULT	1	STANDARD:	PRT:	215 AA.
VEGF_HUMAN				
ID	VEGF_HUMAN			
AC	P15692;			
DT	01-APR-1990 (Rel. 14, Created)			
DT	01-APR-1990 (Rel. 14, Last sequence update)			
DT	15-JUL-1999 (Rel. 38, Last annotation update)			
DE	VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR PERMEABILITY FACTOR) (VPF).			
GN	VEGF OR VEGFA.			
OS	Homo sapiens (human).			
OC	Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE: 90069608.			
RA	leung D.W., Cachianes G., Kuang W.-J., Goeddel D.V., Ferrara N.;			
RT	"Vascular endothelial growth factor is a secreted angiogenic			
RT	mitogen."			
RL	Science. 246:1306-1309(1989).			
RN	[2]			
RP	SEQUENCE FROM N.A. AND PARTIAL SEQUENCE.			
RX	MEDLINE: 90069609.			
RA	Reck P.J., Hauser S.D., Krivi G., Sanzo K., Warren T., Feder J.,			
RT	Connolly D.T.;			
RT	"Vascular permeability factor, an endothelial cell mitogen related to			
RT	PDGF."			
RL	Science 246:1309-1312(1989).			
RN	[3]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE: 91268072.			
RA	Tischer E., Mitchell R., Hartman T., Silva M., Gospodarowicz D.,			
RT	Fiddes J.C., Abraham J.A.;			
RT	"The human gene for vascular endothelial growth factor. Multiple			
RT	protein forms are encoded through alternative exon splicing."			
RL	J. Biol. Chem. 266:11947-11954(1991).			
RN	[4]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE: 92231879.			
RA	Weindel K., Matrone D., Welch H.A.;			
RT	"Aids-associated Kaposi's sarcoma cells in culture express vascular			
RT	endothelial growth factor."			
RL	Biochem. Biophys. Res. Commun. 183:1167-1174(1992).			
RN	[5]			
RP	PRELIMINARY SEQUENCE OF 27-36; 43-50 AND 59-81.			
RA	Connolly D.T., Olander J.V., Heuvelman D., Nelson R., Monsell R.,			
RT	Stiegel N., Haymore B.L., Leimgruber R., Feder J.;			
RT	"Human vascular permeability factor. Isolation from U937 cells."			
RL	J. Biol. Chem. 264:20017-20024(1989).			
RN	[6]			
RP	SEQUENCE OF 27-41.			
RX	MEDLINE: 93145946.			
RA	Fleisch B.L., Jaeger B., Schoellmann C., Weindel K., Witting J.,			
RT	Kochs G., Matrone D., Hug H., Welch H.A.;			
RT	"Synthesis and assembly of functionally active human vascular			

endothelial growth factor homodimers in insect cells.";
 Eur. J. Biochem. 211:19-26(1993).
 [7]
 X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF 34-135.
 MEDLINE; 97352774.
 RA Muller Y.A., Li B., Christinger H.W., Wells J.A., Cunningham B.C.,
 de Vos A.M.;
 "Vascular endothelial growth factor: crystal structure and functional
 mapping of the kinase domain receptor binding site.";
 Proc. Natl. Acad. Sci. U.S.A. 94:7192-7197(1997).
 [8]
 X-RAY CRYSTALLOGRAPHY (1.93 ANGSTROMS) OF 34-135.
 MEDLINE; 98035455.
 RA Muller Y.A., Christinger H.W., Keyt B.A., de Vos A.M.;
 "The crystal structure of vascular endothelial growth factor (VEGF)
 refined to 1.93-A resolution: multiple copy flexibility and receptor
 binding.";
 Structure 5:1325-1338(1997).
 [9]
 X-RAY CRYSTALLOGRAPHY (1.9 ANGSTROMS) OF 39-134.
 MEDLINE; 99119204.
 RA Wiesmann C., Christinger H.W., Cochran A.G., Cunningham B.C.,
 Fairbrother W.D., Keenan C.J., de Vos A.M.;
 "Crystal structure of the complex between VEGF and a receptor-blocking
 peptide.";
 Biochemistry 37:17765-17772(1998).
 [10]
 STRUCTURE BY NMR OF 34-135.
 MEDLINE; 97477915.
 RA Fairbrother W.D., Champagne M.A., Christinger H.W., Keyt B.A.,
 Starovasnik M.A.;
 "H, 13C, and 15N backbone assignment and secondary structure of the
 receptor-binding domain of vascular endothelial growth factor.";
 Protein Sci. 6:2250-2260(1997).
 [11]
 STRUCTURE BY NMR OF 137-215.
 MEDLINE; 98298440.
 RA Fairbrother W.D., Champagne M.A., Christinger H.W., Keyt B.A.,
 Starovasnik M.A.;
 "Solution structure of the heparin-binding domain of vascular
 endothelial growth factor.";
 Structure 6:637-648(1998).
 [12]
 FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 PERMEABILITY.
 SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 SIMILARITY).
 ALTERNATIVE PRODUCTS: FOUR FORMS OF VEGF ARE PRODUCED BY
 ALTERNATIVE SPLICING OF THE SAME GENE (VEGF-121, VEGF-165,
 VEGF-189 AND VEGF-215).
 SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 THIS SWISS-PROT entry is copyright. It is produced through a collaboration
 between the Swiss Institute of Bioinformatics and the EMBL outstation
 at the European Bioinformatics Institute. There are no restrictions on its
 use by non-profit institutions as long as its content is in no way
 modified and this statement is not removed. Usage by and for commercial
 entities requires a license agreement (See <http://www.ebi.ac.uk/announcements/>
 or send an email to license@ebi.ac.uk).

PIR: A34492; A34492.
 PIR: A40079; A40079.
 PIR: A40080; A40080.
 PIR: A40454; A40454.
 PIR: A40454; B40454.
 PIR: B40454; C40454.
 PIR: J01463; J01463.
 PIR: J01464; J01464.
 PIR: S17348; S17348.
 PDB: 1VGH; 08-APR-98.
 PDB: 2VGH; 08-APR-98.
 PDB: 1VPE; 08-APR-98.
 PDB: 2VPE; 29-JUL-98.
 PDB: 1VPP; 23-FEB-99.
 MIM: 193240; -.
 INTERPRO: IPR006072; -.
 PFM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF_1; 1.
 DR PROSITE: PS0278; PDGF_2; 1.
 KM Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal;
 3D-structure. 1;
 FT SIGNAL 27 26
 FT CHAIN 27 215
 FT DISULFID 52 94
 FT DISULFID 83 128
 FT DISULFID 87 130
 FT DISULFID 77 77
 FT DISULFID 86 86
 FT CARBOHYD 101 101
 FT VARSPLIC 141 141
 FT VARSPLIC 142 165
 FT VARSPLIC 142 209
 SQ SEQUENCE 215 AA; 25173 MW; 7B9759AD5671FF33 CRC64;
 INTERCHAIN.
 N-LINKED (GLCNAC. . .).
 K -> N (IN ISOFORM VEGF-121 AND ISOFORM
 VEGF-165).
 MISSING (IN ISOFORM VEGF-165).
 MISSING (IN ISOFORM VEGF-121).
 VASCULAR ENDOTHELIAL GROWTH FACTOR.

Query Match 89.5%; Score 77; DB 1; Length 215;
 Best Local Similarity 100.0%; Pred. No. 3.3e-07;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 2 EESNITMQRIRKPH 16
 DB 98 EESNITMQRIRKPH 112
 RESULT 2
 VEGF_MOUSE STANDARD; PRT; 214 AA.
 ID VEGF_MOUSE 000731;
 DT 01-APR-1993 (Rel. 25, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 01-OCT-1996 (Rel. 34, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
 PERMEABILITY FACTOR) (VPE).
 GN VEGF.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE; 92274860.
 RA Breier G., Albrecht U., Sterrer S., Risau W.;
 "Expression of vascular endothelial growth factor during embryonic
 angiogenesis and endothelial cell differentiation.";
 Development 114:521-532(1992).
 RN [2]
 RP SEQUENCE FROM N.A. (VEGF-1).
 RX MEDLINE; 92355593.
 RA Claffey K.P., Wilkison W.O., Spiegelman B.M.;
 "Vascular endothelial growth factor. Regulation by cell
 differentiation and activated second messenger pathways.";
 J. Biol. Chem. 267:16317-16322(1992).
 RN [3]

RP SEQUENCE OF 1-3 FROM N.A.
 RX MEDLINE: 96216498.
 RA Shima D.T., Kuroki M., Deutsch U., Ng Y., Adams A.P., D'Amore P.A.;
 RT "The mouse gene for vascular endothelial growth factor. Genomic
 RT structure, definition of the transcriptional unit, and
 RT characterization of transcriptional and post-transcriptional
 RT regulatory sequences."
 RL J. Biol. Chem. 271:3877-3883(1996).
 CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 CC PERMEABILITY.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC -1- SUBCELLULAR LOCATION: VEGF-1 AND VEGF-2 ARE SECRETED WHILE
 CC VEGF-3 REMAINS CELL-SURFACE ASSOCIATED UNLESS RELEASED BY
 CC HEPARIN.
 CC -1- ALTERNATIVE PRODUCTS: THREE FORMS (VEGF-1, VEGF-2 AND VEGF-3) ARE
 CC PRODUCED AS A RESULT OF ALTERNATIVE SPLICING OF THE SAME GENE. THE
 CC LONGEST FORM (VEGF-3, SHOWN HERE) CONTAINS A BASIC INSERT LINKED
 CC TO CELL-ASSOCIATION/HEPARIN-BINDING.
 CC -1- TISSUE SPECIFICITY: IN DEVELOPING EMBRYOS, EXPRESSED MAINLY IN
 CC THE CHOROID PLEXUS, PARAVENTRICULAR NEUROEPITHELIUM, PLACENTA AND
 CC KIDNEY GLOMERULI. ALSO FOUND IN BRONCHIAL EPITHELIUM, ADRENAL
 CC GLAND AND IN SEMINIFEROUS TUBULES OF TESTIS. HIGH EXPRESSION OF
 CC VEGF CONTINUES IN KIDNEY GLOMERULI AND CHOROID PLEXUS IN ADULTS.
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 CC EMBL: S37052; AAB22252.1; -
 CC DR EMBL: S38083; AAB22253.1; -
 CC DR EMBL: S38100; AAB22254.1; -
 CC DR EMBL: M95200; AAA40547.1; -
 CC DR EMBL: U41383; CAB35545.1; -
 CC DR PIR: A43351; A43351.
 CC DR HSSP: P15692; 2VGH.
 CC DR MGD: MGI103178; VEGF.
 CC DR INTERPRO: IPR000072; -
 CC DR PFAM: PF00341; PDGF_1.
 CC DR PROSITE: PS00249; PDGF_1; 1.
 CC DR PROSITE: PS50278; PDGF_2; 1.
 CC KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
 CC FT SIGNAL 1 26
 CC FT CHAIN 27 214
 CC FT DISULFID 51 93 BY SIMILARITY.
 CC FT DISULFID 82 127 VASCULAR ENDOTHELIAL GROWTH FACTOR.
 CC FT DISULFID 86 129 BY SIMILARITY.
 CC FT DISULFID 76 76 BY SIMILARITY.
 CC FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
 CC FT CARBOHYD 100 100 INTERCHAIN (BY SIMILARITY).
 CC FT VASAPLIC 140 140 N-LINKED (GLCNAC. . .) (PROBABLE).
 CC FT VASAPLIC 141 164 K -> N (IN ISOFORM VEGF-1).
 CC FT VASAPLIC 141 208 MISSING (IN ISOFORM VEGF-1).
 CC FT CONFLICT 117 118 MISSING (IN ISOFORM VEGF-2).
 CC FT CONFLICT 117 118 GE -> ER (IN REF. 2).
 CC SQ SEQUENCE 214 AA; 25283 MM; B5540B51E4BBE17 CRC64;

ID VEGF_SHEEP STANDARD; PRT; 146 AA.
 AC P50412;
 DT 01-OCT-1996 (Rel. 34, Created)
 DT 01-OCT-1996 (Rel. 34, Last sequence update)
 DT 01-NOV-1997 (Rel. 35, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
 DE PERMEABILITY FACTOR) (VPF).
 GN VEGF.
 OS Ovis aries (Sheep).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Caprinae; Ovis.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-KIDNEY;
 RX MEDLINE: 97117958.
 RA Redmer D.A., Dal Y., Li J., Charnock-Jones D.S., Smith S.K.,
 RA Reynolds L.P., Moor R.M.;
 RT "Characterization and expression of vascular endothelial growth
 RT factor (VEGF) in the ovine corpus luteum."
 RL J. Reprod. Fert. 108:157-165(1996).
 CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
 CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
 CC PERMEABILITY.
 CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
 CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
 CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
 CC SIMILARITY).
 CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
 CC -----
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
 CC the European Bioinformatics Institute. There are no restrictions on its
 CC use by non-profit institutions as long as its content is in no way
 CC modified and this statement is not removed. Usage by and for commercial
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 CC or send an email to license@isb-sib.ch).
 CC -----
 CC EMBL: X89506; CAA61677.1; -
 CC DR HSSP: P15692; 1VPF.
 CC DR INTERPRO: IPR000072; -
 CC DR PFAM: PF00341; PDGF_1.
 CC DR PROSITE: PS00243; PDGF_1; 1.
 CC DR PROSITE: PS50273; PDGF_2; 1.
 CC KW Mitogen; Growth factor; Glycoprotein; Signal.
 CC FT SIGNAL 1 26
 CC FT CHAIN 27 146
 CC FT DISULFID 51 93 VASCULAR ENDOTHELIAL GROWTH FACTOR.
 CC FT DISULFID 82 127 BY SIMILARITY.
 CC FT DISULFID 86 129 BY SIMILARITY.
 CC FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
 CC FT CARBOHYD 100 100 INTERCHAIN (BY SIMILARITY).
 CC FT CARBOHYD 100 100 N-LINKED (GLCNAC. . .) (POTENTIAL).
 CC SQ SEQUENCE 146 AA; 17247 MM; 4E792CB557F91760 CRC64;

Query Match 82.6%; Score 71; DB 1; Length 146;
 Best Local Similarity 93.3%; Pred. No. 2.8e-06;
 Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Db 97 EBNITMOIRKPH 111

RESULT 4
 VEGF_CAVPO STANDARD; PRT; 164 AA.
 ID VEGF_CAVPO
 AC P26617; 1992 (Rel. 23, Created)
 DT 01-AUG-1992 (Rel. 23, Last sequence update)
 DT 01-AUG-1992 (Rel. 23, Last annotation update)
 DT 01-OCT-1996 (Rel. 34, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) (VASCULAR PERMEABILITY

DE FACTOR (VPE).
GN VEGF
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
RN Mammalia; Eutheria; Rodentia; Hystriognath; Cavidae; Cavia.
RP SEQUENCE FROM N.A.
RA Berse B.;
RL Submitted (XXX-1992) to the EMBL/Genbank/DBS databases.
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation -
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
or send an email to license@isb-sib.ch).
CC
CC EMBL: M84230; AAA37057.1; -
DR HSSP: P15692; 2VGH
DR INTERPRO: IPR000072; -
DR PIR: A33255; A33255.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein.
FT DISULFID 25 67 BY SIMILARITY.
FT DISULFID 56 101 BY SIMILARITY.
FT DISULFID 60 103 BY SIMILARITY.
FT DISULFID 50 50 INTERCHAIN (BY SIMILARITY).
FT DISULFID 59 59 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 74 74 N-LINKED (GLCNAc...) (POTENTIAL).
SQ SEQUENCE 164 AA; 19330 MW; 9EB86A81A9D5DC4A CRC64;

Query Match 82.6%; Score 71; DB 1; Length 164;
Best Local Similarity 93.3%; Pred. No. 3.2e-06;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 EESNTTQIMRIKPH 16
Db 71 EEFNTTQIMRIKPH 85

RESULT 5
VEGF_BOVIN 1
ID VEGF_BOVIN STANDARD; PRT; 190 AA.
AC P15691;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
PERMEABILITY FACTOR) (VPF).
GN VEGF
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
RN [1]
RP SEQUENCE FROM N.A., AND SEQUENCE OF 27-47.
RA MEDLINE; 90069608.
RA Leung D.W., Cachianes G., Kuang W.-D., Goeddel D.V., Ferrara N.;
RT "Vascular endothelial growth factor is a secreted angiogenic
mitogen."
RL Science 246:1306-1309(1989).
RN [2]

RP SEQUENCE OF 27-190 FROM N.A.
RX MEDLINE; 90121225.
RA Tischer E., Gospodarowicz D., Mitchell R., Silva M., Schilling J.,
RA Lau K., Crisp T., Fiddes J.C., Abraham J.A.;
RT "Vascular endothelial growth factor: a new member of the platelet-
derived growth factor gene family";
RL Biochem. Biophys. Res. Commun. 165:1198-1206(1989).
RN [3]
RP SEQUENCE OF 27-31.
RX MEDLINE; 89286596.
RA Ferrara N., Henzel W.J.;
RT "Pituitary follicular cells secrete a novel heparin-binding growth
factor specific for vascular endothelial cells";
RL Biochem. Biophys. Res. Commun. 161:851-858(1989).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
between the Swiss Institute of Bioinformatics and the EMBL outstation -
the European Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
or send an email to license@isb-sib.ch).
CC
CC EMBL: M32976; AAA30502.1; -
DR EMBL: M31836; AAA30804.1; -
DR EMBL: M33750; AAA30805.1; -
DR PIR: A33255; A33255.
DR PIR: A33787; A33787.
DR PIR: B40080; B40080.
DR HSSP: P15692; 2VGH
DR INTERPRO: IPR000072; -
DR PIR: A33255; A33255.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Alternative splicing; Signal.
FT SIGNAL 1 26
FT CHAIN 27 190
FT DISULFID 51 93 BY SIMILARITY.
FT DISULFID 82 127 BY SIMILARITY.
FT DISULFID 86 129 BY SIMILARITY.
FT DISULFID 76 76 INTERCHAIN (BY SIMILARITY).
FT DISULFID 85 85 INTERCHAIN (BY SIMILARITY).
FT CARBOHYD 100 100 N-LINKED (GLCNAc...) (POTENTIAL).
FT CARBOHYD 139 183 MISSING (IN ISOFORM BETA).
FT VARSPIC 184 184 R -> K (IN ISOFORM BETA).
SQ SEQUENCE 190 AA; 22310 MW; EDBF903E46E24789 CRC64;

Query Match 82.6%; Score 71; DB 1; Length 190;
Best Local Similarity 93.3%; Pred. No. 3.8e-06;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 2 EESNTTQIMRIKPH 16
Db 97 EEFNTTQIMRIKPH 111

RESULT 6
VEGF_PIG 1
ID VEGF_PIG STANDARD; PRT; 190 AA.
AC P49151;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR

DE PERMEABILITY FACTOR (VPF).
GN VEGF.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
RN [1]
RN SEQUENCE FROM N.A.
RC TISSUE=HEART;
RX MEDLINE: 95143284.
RA Sharma H.S., Tang Z.H., Gho B.C.H., Verdouw P.D.;
RT "Nucleotide sequence and expression of the porcine vascular
RT endothelial growth factor."
RL Biochim. Biophys. Acta 1260:235-238(1995).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY (BY SIMILARITY).
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED (BY SIMILARITY).
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: X81380; CAA57143.1; -
DR HSSP: P15692; 2VGH.
DR INTERPRO: IPR000072; -
DR PIR: A35987; A35987.
DR PFAM: PF00341; PDGF_1; 1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
DR MitoGen; Growth factor; Glycoprotein; Signal.
KW SIGNAL 1 26
FT CHAIN 1 26
FT DISULFID 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
SQ SEQUENCE 190 AA; 22368 MM; 04D40B8D/913047F CRC64;
N-LINKED (GLCNAC. . .) (POTENTIAL).
Query Match 82.6%; Score 71; DB 1; Length 190;
Best Local Similarity 93.3%; Pred. No. 3.8e-06;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

RA Conn G., Bayne M.L., Soderman D.D., Kwok P.W., Sullivan K.A.,
RA Palisi T.M., Hope D.A., Thomas K.A.;
RT "Amino acid and cDNA sequences of a vascular endothelial cell mitogen
RT that is homologous to platelet-derived growth factor."
RL Proc. Natl. Acad. Sci. U.S.A. 87:2628-2633(1990).
CC -1- FUNCTION: GROWTH FACTOR ACTIVE IN ANGIOGENESIS, AND ENDOTHELIAL
CC CELL GROWTH. INDUCES ENDOTHELIAL PROLIFERATION AND VASCULAR
CC PERMEABILITY.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: SECRETED BUT REMAINS ASSOCIATED TO CELLS OR
CC TO THE EXTRACELLULAR MATRIX UNLESS RELEASED BY HEPARIN (BY
CC SIMILARITY).
CC -1- TISSUE SPECIFICITY: EXPRESSED IN THE PITUITARY, IN BRAIN, IN
CC PARTICULAR IN SUPRAOPTIC AND PARAVENTRICULAR NUCLEI AND THE
CC CHOROID PLEXUS. ALSO FOUND ABUNDANTLY IN THE CORPUS LUTEUM OF
CC THE OVARY AND IN KIDNEY GLOMERULI.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M32167; AAA41211.1; -
DR PIR: A35987; A35987.
DR HSSP: P15692; 2VGH.
DR INTERPRO: IPR000072; -
DR PFAM: PF00341; PDGF_1; 1.
DR PROSITE: PS00249; PDGF_1; 1.
DR PROSITE: PS50278; PDGF_2; 1.
DR MitoGen; Growth factor; Glycoprotein; Signal.
KW SIGNAL 1 26
FT CHAIN 1 26
FT DISULFID 27 190
FT DISULFID 51 93
FT DISULFID 82 127
FT DISULFID 86 129
FT DISULFID 76 76
FT DISULFID 85 85
FT CARBOHYD 100 100
SQ SEQUENCE 190 AA; 22396 MM; 589374010441F377 CRC64;
N-LINKED (GLCNAC. . .)
Query Match 82.6%; Score 71; DB 1; Length 190;
Best Local Similarity 92.9%; Pred. No. 3.8e-06;
Matches 13; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 2 ESNITMIMIRKPH 16
DB 97 ESNITMIMIRKPH 111
RESULT 7
VEGF_RAT
ID VEGF_RAT STANDARD: PRT: 190 AA.
AC P16612;
DT 01-AUG-1990 (Rel. 15, Created)
DT 01-AUG-1990 (Rel. 15, Last sequence update)
DT 01-OCT-1996 (Rel. 34, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
RN [1]
RN SEQUENCE FROM N.A. AND SEQUENCE OF 27-190.
RX MEDLINE: 90207249.

OY 3 ESNITMIMIRKPH 16
DB 98 ESNITMIMIRKPH 111
RESULT 8
VEGF_CHICK
ID VEGF_CHICK STANDARD: PRT: 216 AA.
AC P52582; G91420;
DT 01-OCT-1996 (Rel. 34, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-DEC-1998 (Rel. 37, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR PRECURSOR (VEGF) (VASCULAR
DE PERMEABILITY FACTOR) (VPF).
GN VEGF.
OS Gallus gallus (Chicken), and
OS Coturnix coturnix japonica (Japanese quail).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
RN [1]
RN SEQUENCE FROM N.A.
RC SPECIES=CHICKEN: TISSUE=HEART;
RA Takahashi T.;


```
CC entities requires a license&sb-sib.ch).  
or send an email to license@sb-sib.ch).  
-----
```

```
DR EMBL; AB000732; BAA24500.1; -.  
DR MIM; 600797; -.  
DR INTERPRO; IPR001849; -.  
DR INTERPRO; IPR002404; -.  
DR Pfam; PF00169; PH; 1.  
DR PRINTS; PR00628; INSULINRST.  
DR PROSITE; PS00003; PH_DOMAIN; 1.  
KW Phosphorylation.  
FT DOMAIN 16 144  
FT MOD_RES 190 303 PTB.  
FT MOD_RES 540 540 PHOSPHORYLATION (BY INSR) (BY SIMILARITY)  
FT FT PHOSPHORYLATION (BY INSR) (BY SIMILARITY)  
FT MOD_RES 653 653 PHOSPHORYLATION (BY INSR) (BY SIMILARITY)  
FT MOD_RES 675 675 PHOSPHORYLATION (BY INSR) (BY SIMILARITY)  
FT MOD_RES 919 919 PHOSPHORYLATION (BY INSR) (BY SIMILARITY)  
FT MOD_RES 978 978 PHOSPHORYLATION (BY INSR) (BY SIMILARITY)  
FT MOD_RES 1253 1253 PHOSPHORYLATION (BY INSR) (BY SIMILARITY)  
FT DOMA...  
FT MODALN 19 28 POLY-ASN.  
FT MODALN 371 380 POLY-ALA.  
FT MODALN 447 452 POLY-SER.  
FT MODALN 460 467 POLY-PRO.  
FT MODALN 533 537 POLY-GLY.  
FT MODALN 642 645 POLY-SER.  
FT MODALN 694 701 POLY-ALA.  
FT MODALN 944 947 POLI-SER.  
FT MODALN 1031 1038 POLY-PRO.  
FT MODALN 1265 1278 POLY-PRO.  
SQ SEQUENCE 1324 AA; 136482 MW; 3D7BAADAE4E5104 CRC64;
```

```
Query Match          51.2%; Score 44; DB 1; Length 1324;  
Best Local Similarity 42.9%; Pred. No. 3.6;  
Matches    6; Conservative      6; Mismatches   2; Indels     0; Gaps       0;  
  
Qy        1 CEESNTTMOVMRIK 14  
         11:::1:1:1:1:  
DB        233 CEGPSVTLQLNMIR 246  
  
RESULT_12  
ID OSTA_SCHPO STANDARD; PRT; 450 AA.  
AC Q10176;  
DT 01-OCT-1996 (Rel. 34, Created)  
DI 01-OCT-1996 (Rel. 34, Last sequence update)  
DF 15-JUN-1989 (Rel. 38, last annotation update)  
DE PUTATIVE DOLICHTYL-DIPHOSPHOOLIGOSACCCHARIDE--PROTEIN  
GUTCOXSLTRANSFERENCE ALPHA SUBUNIT PRECURSOR (EC 2.4.1.119)  
DE (OLIGOSACCCHARYL TRANSFERASE ALPHA SUBUNIT).  
GN SPAC27FL.07.  
OS Schizosaccharomyces pombe (fission yeast).  
OC Eukaryota; Fungi; Ascomycota; Schizosaccaromycetales;  
SC Schizosaccaromycetaceae; Schizosaccaromycetes.  
RN [1]  
RP SEQUENCE FROM N.A.  
RC STRAIN-972;  
RA Harris D., McDonald S., Barrell B.G., Rajandream M.A., Walsh S.V.;  
RL Submitted (FEB-1996) to the EMBL/Genebank/DBJ databases  
CC -! FUNCTION: ESSENTIAL SUBUNIT OF N-OLIGOSACCCHARYL TRANSFERASE.  
CC * MANNOSE OLIGOSACCCHARIDE FROM A LIPID-LINKED OLIGOSACCCHARIDE DONOR  
CC ONTO ASPARAAGINE ACCEPTOR SITES WITHIN AN ASN-X-SER/THR CONSENSUS  
CC MOTIF IN NEWLY SYNTHESIZED PROTEINS.  
CC -! CATALYTIC ACTIVITY: DOLICHYL DIPHOSPHOOLIGOSACCCHARIDE + PROTEIN  
CC L-ASPARAGINE = DOLICHYL DIPHOSPATE + A GLYCOPROTEIN WITH THE
```

CC OLIGOSACCHARIDE CHAIN ATTACHED BY GLYCOSYLAMINE LINKAGE TO PROTEIN
CC L-ASPARAGINE.
CC -1- PATHWAY: GLYCOSYLATION.
CC -1- SUBCELLULAR LOCATION: TYPE I MEMBRANE PROTEIN. ENDOPLASMIC
CC RETICULUM (BY SIMILARITY).
CC -1- SIMILARITY: TO MAMMALIAN RIBOPHORIN I AND YEAST OST1.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; Z69368; CAA93296.1; -
KW Hypothetical protein; Transferase; Endoplasmic reticulum;
RW Transmembrane; glycoprotein; Signal.
FT SIGNAL 1 18
FT CHAIN 19 450
FT FT
FT FT
FT DOMAIN 19 424
FT TRANSMEM 425 444
FT DOMAIN 445 450
FT CARBOHYD 290 290
FT CARBOHYD 383 383
FT CARBOHYD 405 405
FT CARBOHYD 422 422
SQ SEQUENCE 450 AA; 51683 MW; 8C96E34C2EEEF11 CRC64;
Query Match 50.0%; Score 43; DB 1; Length 450;
Best Local Similarity 53.3%; Pred. No. 1.7;
Matches 8; Conservative 2; Mismatches 5; Indels 0; Gaps 0;
OY 2 EESNTMOIMRIKPH 16
Db 287 EYGNITTSRMREPH 301
RESULT 13
PLGF_HUMAN STANDARD; PRT; 170 AA.
AC P49763;
DT 01-OCT-1996 (Rel. 34, Created)
DT 01-OCT-1996 (Rel. 34, Last sequence update)
DT 01-OCT-2000 (Rel. 40, Last annotation update)
DE PLACENTA GROWTH FACTOR PRECURSOR (PLGF-1/PLGF-2).
GN PGF OR PLGF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
RN [1]
RN SEQUENCE FROM N.A. (PLGF-1).
RN TISSUE-PLACENTA;
RX MEDLINE; 92021031.
RA Maglione D., Guerriero G., Vigiiletto G., Della-Bovi P., Persico M.G.;
RT "Isolation of a human placenta cDNA coding for a protein related to
RT the vascular permeability factor.";
RL Proc. Natl. Acad. Sci. U.S.A. 88:9267-9271(1991).
RN [2]
RN SEQUENCE FROM N.A. (PLGF-2).
RN TISSUE-PLACENTA;
RX MEDLINE; 94198032.
RA Hauser S., Welch H.A.;
RT "A heparin-binding form of placenta growth factor (PLGF-2) is
RT expressed in human umbilical vein endothelial cells and in
RT placenta.";
RL Growth Factors 9:259-268(1993).
RN [3]
RN SEQUENCE FROM N.A. (PLGF-2).
RX MEDLINE; 93205407.

RA Maglione D., Guerriero G., Vigiiletto G., Ferraro M.G., Aprelikova O.,
RA Allitalo K., del Vecchio S., Lei K.-J., Chou J.Y., Persico M.G.;
RT "Two alternative mRNAs coding for the angiogenic factor, placenta
RT growth factor (PLGF), are transcribed from a single gene of
RT chromosome 14.";
RL Oncogene 8:925-931(1993).
RN [4]
RN CHARACTERIZATION, AND SEQUENCE OF 19-24.
RX MEDLINE; 95014370.
RA Park J.E., Chen H.H., Winer J., Houck K.A., Ferrara N.;
RT "Placenta growth factor. Potential of vascular endothelial growth
RT factor bioactivity. In vitro and in vivo, and high affinity binding
RT to Flt-1 but not to Flk-1/KDR.";
RL J. Biol. Chem. 269:25646-25654(1994).
CC -1- FUNCTION: GROWTH FACTOR OF UNKNOWN FUNCTION. BINDS TO RECEPTOR
CC VEGFR-1 (FLK1). THE LONGER FORM (PLGF-2) CAN ALSO BIND HEPARIN. IT
CC IS ABLE TO POTENTIATE THE ACTION OF LOW LEVELS OF VEGF.
CC -1- SUBUNIT: HOMODIMER, DISULFIDE-LINKED.
CC -1- SUBCELLULAR LOCATION: BOTH FORMS ARE SECRETED BUT THE LONGER FORM
CC APPEARS TO REMAIN CELL ATTACHED UNLESS RELEASED BY HEPARIN.
CC -1- ALTERNATIVE PRODUCTS: 2 ISOFORMS: PLGF-1 AND PLGF-2 (SHOWN HERE);
CC ARE PRODUCED BY ALTERNATIVE SPLICING. PLGF-1 DIFFERS FROM PLGF-2
CC IN LACKING A 21 RESIDUES SEGMENT IN THE C-TERMINAL SECTION WHICH
CC ACTS AS A CELL RETENTION SIGNAL.
CC -1- TISSUE SPECIFICITY: WHILE BOTH FORMS ARE PRESENT IN MOST PLACENTAL
CC TISSUES, THE LONGER FORM IS SPECIFIC TO EARLY (8 WEEK) PLACENTA
CC AND ONLY THE SHORTER FORM IS FOUND IN THE COLON AND MAMMARY
CC CARCINOMAS.
CC -1- PTM: N-GLYCOSYLATED.
CC -1- SIMILARITY: BELONGS TO THE PDGF/VEGF FAMILY OF GROWTH FACTORS.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; X54936; CAA38698.1; -
DR EMBL; A18411; CAA01393.1; -
DR EMBL; S72960; AAB30462.2; -
DR HSSP; P15692; IYFE.
DR MIM; 601121; -
DR INTERPRO: IPR000072; -
DR PRAM; PF00341; PDGF_1; -
DR PROSITE; PS00248; PDGF_1; 1.
DR PROSITE; PS50278; PDGF_2; 1.
KW Mitogen; Growth factor; Glycoprotein; Signal; Alternative splicing;
KW Heparin-binding.
FT SIGNAL 1 18
FT CHAIN 19 170
FT DISULFID 32 94
FT DISULFID 83 128
FT DISULFID 87 130
FT DISULFID 77 77
FT DISULFID 86 86
FT DISULFID 33 33
FT CARBOHYD 101 101
FT CARBOHYD 142 162
FT VASPLPFC 91 91
FT CONFLICT 91 91
SQ SEQUENCE 170 AA; 19325 MW; E47639AC59C0963F CRC64;
Query Match 47.7%; Score 41; DB 1; Length 170;
Best Local Similarity 46.2%; Pred. No. 1.4;
Matches 6; Conservative 6; Mismatches 1; Indels 0; Gaps 0;
OY 2 EESNTMOIMRIK 14
Db 98 ETANTMOLKIR 110

RESULT 14
ID HS7L.SBYV STANDARD; PRT: 598 AA.
AC P37092;
DT 01-OCT-1994 (Rel. 30, Created)
DT 01-OCT-1994 (Rel. 30, Last sequence update)
DT 01-OCT-1994 (Rel. 30, Last annotation update)
DE HEAT SHOCK PROTEIN 70 HOMOLOG.
OS Sugar beet yellow virus (SBYV).
OC Viruses; ssRNA positive-strand viruses, no DNA stage; Closteroviridae;
OC Closterovirus.
RN [1]
RP SEQUENCE FROM N.A.
RX STRAIN-UKRAINIAN;
RC MEDLINE: 91116305.
RA Agronomovskiy A.A., Boyko V.P., Karasev A.V., Lunina N.A., Koonin E.V.,
RA Dolja V.V.;
RT "Nucleotide sequence of the 3'-terminal half of beet yellows
RT closterovirus RNA genome: unique arrangement of eight virus genes.";
RL J. Gen. Virol. 72:15-23(1991).
RN [2]
RP DISCUSSION OF SEQUENCE.
RX MEDLINE: 91171285.
RA Agronomovskiy A.A., Boyko V.P., Karasev A.V., Koonin E.V., Dolja V.V.;
RT "putative 65 kDa protein of beet yellows closterovirus is a homologue
RT of HSP70 heat shock proteins.";
RL J. Mol. Biol. 217:603-610(1991).
CC -1- SIMILARITY: BELONGS TO THE HEAT SHOCK PROTEIN 70 FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: X53462; CA37551.1; -;
DR EMBL: X73476; CA51865.1; -;
DR PIR: S28712; S28712.
DR INTERPRO: IPR001023; -;
DR PROSITE: PS00297; HSP70_1; FALSE_NEG.
DR PROSITE: PS00329; HSP70_2; 1.
DR PROSITE: PS01036; HSP70_3; 1.
KW ATP-binding; 598 AA; 65230 MW; 496BB8937374DC CRC64;
SQ SEQUENCE 598 AA; 65230 MW; 496BB8937374DC CRC64;
Query Match 46.5%; Score 40; DB 1; Length 598;
Best local Similarity 37.5%; Pred. No. 8.5;
Matches 6; Conservative 4; Mismatches 6; Indels 0; Gaps 0;
QY 1 CEESNTMQIMIRKPH 16
DB 76 CDEENRYDYLEKRP 91
RESULT 15
ID SP3E.BACSU STANDARD; PRT: 787 AA.
AC P21458; P21459;
DT 01-MAY-1991 (Rel. 18, Created)
DT 01-FEB-1995 (Rel. 31, Last sequence update)
DT 15-JUL-1998 (Rel. 36, Last annotation update)
DE STAGE III SPOULATION PROTEIN E.
GN SPOIIE.
OS Bacillus subtilis.
OC Bacteria; Firmicutes; Bacillus/Clostridium group;
OC Bacillus/Staphylococcus group; Bacillus.
RN [1]
RP SEQUENCE FROM N.A.
RX STRAIN-168;
RC MEDLINE: 88199510.
RX

RA Butler P.D., Mandelstam J.;
RT "Nucleotide sequence of the sporulation operon, spoIIE, of Bacillus
RT subtilis.";
RL J. Gen. Microbiol. 133:2359-2370(1987).
RN [2]
RP REVISIONS.
RX MEDLINE: 90014185.
RA Foulger D., Errington J.;
RT "The role of the sporulation gene spoIIE in the regulation of
RT prespore-specific gene expression in Bacillus subtilis.";
RL Mol. Microbiol. 3:1247-1255(1989).
RN [3]
RP CHARACTERIZATION.
RX MEDLINE: 94212172.
RA Wu L.J., Errington J.;
RT "Bacillus subtilis spoIIE protein required for DNA segregation
RT during asymmetric cell division.";
RL Science 264:572-575(1994).
CC -1- FUNCTION: REQUIRED FOR SPOULATION. IT IS REQUIRED FOR CHROMOSOME
CC SEGREGATION INTO THE PRESPORE COMPARTMENT. MAY ALSO BE REQUIRED TO
CC PREVENT SIGMA F FROM BECOMING ACTIVE IN THE MOTHER CELL. MAY BIND
CC DNA.
CC -1- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN (POTENTIAL).
CC -----
CC -1- SIMILARITY: BELONGS TO THE FTSK/SPOIIE FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M17445; AAA22784.1; ALT_SEQ.
DR EMBL: M17445; AAA22785.1; ALT_SEQ.
DR EMBL: Z99112; CAB13553.1; -;
DR PIR: A32269; A32269.
DR PIR: B32269; B32269.
DR PIR: S09411; S09411.
DR SUBTILIST; BG10763; SPOIIE.
DR INTERPRO: IPR002543; -;
DR PFAM: PF01580; FtsK_SpoIIE; 1.
KW Sporulation; ATP-binding; Transmembrane.
FT TRANSMEM 22 42
FT TRANSMEM 52 72
FT TRANSMEM 87 107
FT TRANSMEM 154 174
FT NP_BIND 467 474
FT ATP (POTENTIAL).
SQ SEQUENCE 787 AA; 87153 MW; 316F40F611281653 CRC64;

Query Match 46.5%; Score 40; DB 1; Length 787;
Best local Similarity 50.0%; Pred. No. 11;
Matches 8; Conservative 1; Mismatches 7; Indels 0; Gaps 0;
QY 1 CEESNTMQIMIRKPH 16
DB 476 CVNGITSTILMRKPH 491

Search completed: November 9, 2000, 15:40:24
Job time: 577 sec

Thu Nov 9 15:50:07 2000

us-09-266-543-9.rsp

GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:39:39 ; Search time 106.63 seconds
(without alignments)
14.011 Million cell updates/sec

Title: US-09-266-543-9
Perfect score: 86
Sequence: 1 CEESNITMOIMRIKPH 16

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 297973 seqs, 93374136 residues

Total number of hits satisfying chosen parameters: 297973

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :
1: SPREMBL_14:*
2: SP_Archaea:*
3: SP_Bacteria:*
4: SP_human:*
5: SP_invertebrate:*
6: SP_mammal:*
7: SP_mhc:*
8: SP_organelle:*
9: SP_phage:*
10: SP_plant:*
11: SP_rodent:*
12: SP_virus:*
13: SP_vertebrate:*
14: SP_unclassified:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	77	89.5	147	4 Q9UH58	Q9UH58 homo sapien
2	77	89.5	174	4 Q9UL23	Q9UL23 homo sapien
3	77	89.5	191	4 Q75875	Q75875 homo sapien
4	77	89.5	209	4 Q60720	Q60720 homo sapien
5	77	89.5	234	4 Q16889	Q16889 homo sapien
6	72	83.7	190	11 Q9QX39	Q9QX39 spallax leuc
7	71	82.6	190	6 Q77643	Q77643 ovls aries
8	71	82.6	190	6 Q9XSF3	Q9XSF3 canis famli
9	71	82.6	208	6 Q9XSF4	Q9XSF4 canis famli
10	71	82.6	214	6 Q9XSF5	Q9XSF5 canis famli
11	71	82.6	214	11 Q9QXG7	Q9QXG7 rattus norv
12	70	81.4	68	6 Q97500	Q97500 criccolagus
13	70	81.4	75	6 Q18843	Q18843 criccolagus
14	67	77.9	146	11 Q9QXG6	Q9QXG6 rattus norv
15	60	69.8	148	13 Q42571	Q42571 xenopus lae
16	60	69.8	194	13 Q42572	Q42572 xenopus lae
17	46	53.5	206	12 Q56881	Q56881 grapevine 1
18	46	53.5	599	12 Q71211	Q71211 grapevine 1
19	46	53.5	599	12 Q39854	Q39854 grapevine 1

20	46	53.5	1011	5 Q24273	Q24273 drosophila
21	46	53.5	1079	5 Q9VNP2	Q9VNP2 drosophila
22	45	52.3	158	11 Q63434	Q63434 rattus norv
23	44	51.2	1338	4 Q9Y615	Q9Y615 homo sapien
24	43	50.0	611	12 Q65855	Q65855 beet yellow
25	42	48.8	132	12 Q9YWF3	Q9YWF3 orf virus
26	42	48.8	144	13 Q73822	Q73822 brachydanio
27	42	48.8	188	13 Q73682	Q73682 brachydanio
28	42	48.8	671	10 Q9S849	Q9S849 arabidopsis
29	42	48.8	865	3 Q03002	Q03002 saccharomyc
30	41	47.7	149	4 Q9Y658	Q9Y658 homo sapien
31	39	45.3	83	12 Q9QJ59	Q9QJ59 human immun
32	39	45.3	121	8 Q9TLW7	Q9TLW7 cyanidium c
33	39	45.3	149	6 Q9XS47	Q9XS47 bos taurus
34	39	45.3	221	10 Q65140	Q65140 papaver nud
35	39	45.3	234	10 Q65139	Q65139 papaver cal
36	39	45.3	598	12 Q65894	Q65894 beet yellow
37	39	45.3	598	12 Q89908	Q89908 beet yellow
38	39	45.3	598	12 Q9Q701	Q9Q701 beet yellow
39	39	45.3	674	12 Q9YVX9	Q9YVX9 melanoplus
40	38	44.2	83	12 Q9QUT3	Q9QUT3 human immun
41	38	44.2	83	12 Q9QUT2	Q9QUT2 human immun
42	38	44.2	83	12 Q9QUT1	Q9QUT1 human immun
43	38	44.2	83	12 Q9QUT0	Q9QUT0 human immun
44	38	44.2	83	12 Q9QUS8	Q9QUS8 human immun
45	38	44.2	83	12 Q9QUS7	Q9QUS7 human immun

ALIGNMENTS

RESULT 1					
Q9UH58		PRELIMINARY;	PRT;	147 AA.	
ID Q9UH58					
AC Q9UH58					
DT 01-MAY-2000 (TREMBLrel. 13, Created)					
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)					
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)					
DE VASCULAR ENDOTHELIAL GROWTH FACTOR ISOFORM 121 PRECURSOR.					
OS Homo sapiens (Human).					
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;					
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.					
RN [1]					
RP SEQUENCE FROM N.A.					
RA Sato J.D., Whitney R.G.;					
RT "Human cDNA for vascular endothelial growth factor isoform VEGF121.";					
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.					
DR EMBL; AF214570; AAF19659.1; -					
DR INTERPRO: IPR002072; -					
DR PFM: PF00341; PDGF. 1.					
DR PROSITE: PS00243; PDGF. 1.					
KW SIGNAL.					
FT SIGNAL.					
FT SIGNAL	1.	26	POTENTIAL.		
SQ SEQUENCE	147 AA;	17219 MW;	DDF4D6994249BED6 CRC64;		
Query Match	89.58;	Score 77;	DB 4;	Length 147;	
Best Local Similarity	100.08;	Pred. No. 8.7e-07;			
Matches 15;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0;	
QY 2 EESNITMOIMRIKPH 16					
DB 98 EESNITMOIMRIKPH 112					
RESULT 2					
Q9UL23		PRELIMINARY;	PRT;	174 AA.	
ID Q9UL23					
AC Q9UL23					
DT 01-MAY-2000 (TREMBLrel. 13, Created)					
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)					
DT 01-JUN-2000 (TREMBLrel. 14, Last annotation update)					
DE VASCULAR PERMEABILITY FACTOR 148.					

OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE=KIDNEY;
 RA Whittle C.J., Gillespie K.M., Harrison R., Mathieson P.M.,
 RA Harper S.J.,
 RT "Heterogeneous vascular endothelial growth factor (VEGF) isoform mRNA
 RT and receptor mRNA expression in human glomeruli, and the
 RT identification of VEGF148 mRNA, a novel truncated splice variant."
 RL Clin. Sci. 97:303-312(1999).
 DR EMBL: AF091352; AAC55345.1; -
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 SQ SEQUENCE 174 AA; 20218 MW; AE88400CA7757644 CRC64;

Query Match 89.5%; Score 77; DB 4; Length 174;
 Best Local Similarity 100.0%; Pred. No. 1e-06;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
 DB 98 EESNITMOIMRIKPH 112

RESULT 3
 ID 075875 PRELIMINARY; PRT; 191 AA.
 AC 075875;
 DT 01-NOV-1998 (TREMBlrel. 08, Created)
 DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
 OS Homo sapiens (Human).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-BREAST;
 RA MEDLINE: 98119755.
 RA Claflief K.P., Shih S.-C., Mullen A., Dziennis S., Cusick J.L.,
 RA Abrams K.R., Lee S.W., Detmar M.;
 RT "Identification of a human VEGF 3' untranslated region mediating
 RT hypoxia-induced mRNA stability."
 RL Mol. Biol. Cell 9:469-481(1998).
 DR EMBL: AF022375; AAC63143.1; -
 DR HSSP: P15692; 1VPF.
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PRODOM: PD001629; -; 1.
 SQ SEQUENCE 191 AA; 22320 MW; B5E435838C72715B CRC64;

Query Match 89.5%; Score 77; DB 4; Length 191;
 Best Local Similarity 100.0%; Pred. No. 1.1e-06;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
 DB 98 EESNITMOIMRIKPH 112

RESULT 4
 ID 060720 PRELIMINARY; PRT; 209 AA.
 AC 060720;
 DT 01-AUG-1998 (TREMBlrel. 07, Created)
 DT 01-MAY-1999 (TREMBlrel. 10, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE VEGF183 PROTEIN PRECURSOR (VASCULAR ENDOTHELIAL GROWTH FACTOR 183).

GN VEGF.
 OS Homo sapiens (Human).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-KIDNEY;
 RA Medline: 99096474.
 RA Lei J., Jiang A., Pei D.;
 RT "Identification and characterization of a new splicing variant of
 RT vascular endothelial growth factor: VEGF183."
 RL Biochim. Biophys. Acta. Gene Struct. Expr. 1443:400-406(1998).
 RN [2]
 RP SEQUENCE OF 114+209 FROM N.A.
 RC TISSUE-RETINA;
 RA Jia J., L., Roque R.S.;
 RL Submitted (MAY-1998) to the EMBL/Genbank/DBJ databases.
 DR EMBL: AJ010438; CA09179.1; -
 DR EMBL: AF062645; AAC16730.1; -
 DR HSSP: P15692; 2VPF.
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00249; PDGF; 1.
 DR PRODOM: PD001629; -; 1.
 KW Signal.
 FT SIGNAL 1 26
 FT CHAIN 27 209 POTENTIAL.
 SQ SEQUENCE 209 AA; 24422 MW; F01CEACD945D6CA CRC64;

Query Match 89.5%; Score 77; DB 4; Length 209;
 Best Local Similarity 100.0%; Pred. No. 1.2e-06;
 Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 2 EESNITMOIMRIKPH 16
 DB 98 EESNITMOIMRIKPH 112

RESULT 5
 ID 016889 PRELIMINARY; PRT; 254 AA.
 AC 016889;
 DT 01-NOV-1996 (TREMBlrel. 01, Created)
 DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)
 DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).
 GN VEGF 206.
 OS Homo sapiens (Human).
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC MEDLINE: 92168017.
 RA Houck K.A., Ferrara N., Miner J., Cachianes G., Li B., Leung D.W.;
 RT "The vascular endothelial growth factor family: identification of a
 RT fourth molecular species and characterization of alternative splicing
 RT of RNA."
 RL Mol. Endocrinol. 5:1806-1814(1991).
 DR EMBL: S85192; AAC63102.1; -
 DR EMBL: S85224; AAC63101.1; -
 DR EMBL: S85199; AAC63101.1; JOINED.
 DR EMBL: S85201; AAC63101.1; JOINED.
 DR EMBL: S85219; AAC63101.1; JOINED.
 DR EMBL: S85222; AAC63101.1; JOINED.
 DR HSSP: P15692; 2VPF.
 DR INTERPRO: IPR000072; -
 DR PFAM: PF00341; PDGF; 1.
 DR PROSITE: PS00245; PDGF; 1.
 FT NON_TER 1 1
 SQ SEQUENCE 254 AA; 29461 MW; 069DFE9B9723DBA8 CRC64;

Query Match 89.5%; Score 77; DB 4; Length 254;
Best Local Similarity 100.0%; Pred. No. 1.5e-06;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 ESNITMOIMRIKPH 16
|||
DB 120 ESNITMOIMRIKPH 134

RESULT 6

Q90X39 PRELIMINARY; PRT; 190 AA.
AC Q90X39;
DT 01-MAY-2000 (TREMBlrel. 13, Created)
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Spalax leucodon ehrenbergi (Ehrenberg's mole rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Spalacinae;
OC Spalax.
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE; 99313148.
RA Aviv A., Resnick M.B., Nevo E., Joel A., Levy A.P.;
RT "Adaptive hypoxic tolerance in the subterranean mole rat Spalax
ehrenbergi: the role of vascular endothelial growth factor.";
RL FBS Lett. 452:133-140(1999).
DR EMBL; AF186236; AAD56245.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22488 MW; 2228383BC65F0BFC CRC64;

Query Match 83.7%; Score 72; DB 11; Length 190;
Best Local Similarity 100.0%; Pred. No. 9.6e-06;
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 3 ESNITMOIMRIKPH 16
|||
DB 98 ESNITMOIMRIKPH 111

RESULT 7

Q77643 PRELIMINARY; PRT; 190 AA.
AC Q77643;
DT 01-NOV-1998 (TREMBlrel. 08, Created)
DT 01-NOV-1998 (TREMBlrel. 08, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR.
GN VEGF.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-COLUMBIA-RAMBOULLIET;
RA Cheung C.Y., Brace R.A.;
RT "Ovine vascular endothelial growth factor: Nucleotide sequence and
expression in fetal tissues.";
RL Growth Factors 0:0-0(1998).
DR EMBL; AF071015; AAC23608.1; -.
DR HSSP; P15692; 2VGH.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
DR PRODOM; PD01629; -1.
SQ SEQUENCE 190 AA; 22342 MW; 0D5EB3B3E5C53E739 CRC64;

Query Match 82.6%; Score 71; DB 6; Length 190;
Best Local Similarity 93.3%; Pred. No. 1.5e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIMRIKPH 16
|||
DB 97 ESNITMOIMRIKPH 111

RESULT 8

Q9XSF3 PRELIMINARY; PRT; 190 AA.
AC Q9XSF3;
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 164.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RX TISSUE-HEART;
RA Jjingling L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF133248; AAD29682.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 190 AA; 22292 MW; 205350BC9085CE50 CRC64;

Query Match 82.6%; Score 71; DB 6; Length 190;
Best Local Similarity 93.3%; Pred. No. 1.5e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIMRIKPH 16
|||
DB 97 ESNITMOIMRIKPH 111

RESULT 9

Q9XSF4 PRELIMINARY; PRT; 208 AA.
AC Q9XSF4;
DT 01-NOV-1999 (TREMBlrel. 12, Created)
DT 01-NOV-1999 (TREMBlrel. 12, Last sequence update)
DT 01-JUN-2000 (TREMBlrel. 14, Last annotation update)
DE VASCULAR ENDOTHELIAL GROWTH FACTOR 182.
GN VEGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-HEART;
RA Jjingling L., Roque R.S.;
RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF133249; AAD29683.1; -.
DR INTERPRO; IPR000072; -.
DR PFAM; PF00341; PDGF; 1.
DR PROSITE; PS00249; PDGF; 1.
SQ SEQUENCE 208 AA; 24400 MW; CF77AC591F5C2BBE CRC64;

Query Match 82.6%; Score 71; DB 6; Length 208;
Best Local Similarity 93.3%; Pred. No. 1.6e-05;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIMRIKPH 16
|||

Db 97 EFNITMOIRIKPH 111

RESULT 10

ID 09XSF5 PRELIMINARY; PRT; 214 AA.

AC 09XSF5; 01-NOV-1999 (TREMblrel. 12, Created)

DT 01-NOV-1999 (TREMblrel. 12, Last sequence update)

DE 01-JUN-2000 (TREMblrel. 14, Last annotation update)

DE VASCULAR ENDOTHELIAL GROWTH FACTOR 188.

GN VEGF.

OS Canis familiaris (Dog).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.

RN [1]

RP SEQUENCE FROM N.A.

RC TISSUE=HEART;

RA Jlingling L., Roque R.S.;

RL Submitted (MAR-1999) to the EMBL/GenBank/DBJ databases.

DR EMBL; AF133250; AAD29684.1; -.

DR INTERPRO; IPR000072; -.

DR PFAM; PF00341; PDGF; 1.

DR PROSITE; PS00249; PDGF; 1.

SO SEQUENCE 214 AA; 25151 MW; 2269981AFBC60058 CRC64;

Query Match 82.6%; Score 71; DB 6; Length 214;

Best Local Similarity 93.3%; Pred. No. 1.7e-05;

Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIRIKPH 16

Db 97 EFNITMOIRIKPH 111

RESULT 11

ID 090XG7 PRELIMINARY; PRT; 214 AA.

AC 090XG7; 01-MAY-2000 (TREMblrel. 13, Created)

DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)

DE 01-JUN-2000 (TREMblrel. 14, Last annotation update)

DE VASCULAR ENDOTHELIAL GROWTH FACTOR-A188.

OS Rattus norvegicus (Rat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

RN [1]

RP SEQUENCE FROM N.A.

RC "Developmental expression of vascular endothelial growth factor-A

RT (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat

RL masseter muscle."

DR EMBL; AF215725; AAF19211.1; -.

DR INTERPRO; IPR000072; -.

DR PFAM; PF00341; PDGF; 1.

DR PROSITE; PS00249; PDGF; 1.

SO SEQUENCE 214 AA; 25239 MW; 60FBB87F5304946 CRC64;

Query Match 82.6%; Score 71; DB 11; Length 214;

Best Local Similarity 92.9%; Pred. No. 1.7e-05;

Matches 13; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 3 ESNITMOIRIKPH 16

Db 98 ESNITMOIRIKPH 111

RESULT 12

ID 097500 PRELIMINARY; PRT; 68 AA.

AC 097500; 01-MAY-1999 (TREMblrel. 10, Created)

DT 01-MAY-1999 (TREMblrel. 10, Last sequence update)

DE 01-JUN-2000 (TREMblrel. 14, Last annotation update)

DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).

GN VEGF.

OS Oryctolagus cuniculus (Rabbit).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.

RN [1]

RP SEQUENCE FROM N.A.

RC "Rabbit VEGF cDNA, partial."

RA Inoue K., Kawabe Y., Kodama T.;

RL Submitted (NOV-1998) to the EMBL/GenBank/DBJ databases.

DR EMBL; AB020216; BAA36949.1; -.

DR HSSP; P15692; IVP.

DR INTERPRO; IPR000072; -.

DR PFAM; PF00341; PDGF; 1.

DR PROSITE; PS00249; PDGF; 1.

FT NON_TER 1 1

FT NON_TER 68 68

SO SEQUENCE 68 AA; 7819 MW; 687638661E98DE0 CRC64;

Query Match 81.4%; Score 70; DB 6; Length 68;

Best Local Similarity 86.7%; Pred. No. 8.2e-06;

Matches 13; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIRIKPH 16

Db 52 EFNITMOIRIKPH 66

RESULT 13

ID 018843 PRELIMINARY; PRT; 75 AA.

AC 018843; 01-JAN-1998 (TREMblrel. 05, Created)

DT 01-JAN-1998 (TREMblrel. 05, Last sequence update)

DE 01-JUN-2000 (TREMblrel. 14, Last annotation update)

DE VASCULAR ENDOTHELIAL GROWTH FACTOR (FRAGMENT).

GN VEGF.

OC Oryctolagus cuniculus (Rabbit).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN=WHITE NEW ZEALAND; TISSUE=SKELLETAL MUSCLE;

RX MEDLINE; 98191144.

RA Skotjanc D., Jaschinski F., Heine G., Pette D.;

RT "Sequential increases in capillarization and mitochondrial enzymes in

RT low-frequency-stimulated rabbit muscle."

RL Am. J. Physiol. 274:0-0(1998).

DR EMBL; AF022179; AAC15469.1; -.

DR HSSP; P15692; IVP.

DR INTERPRO; IPR000072; -.

DR PFAM; PF00341; PDGF; 1.

DR PROSITE; PS00249; PDGF; 1.

FT NON_TER 1 1

FT NON_TER 75 75

SO SEQUENCE 75 AA; 8720 MW; DDCB2C5B29E69359 CRC64;

Query Match 81.4%; Score 70; DB 6; Length 75;

Best Local Similarity 86.7%; Pred. No. 9e-06;

Matches 13; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 2 ESNITMOIRIKPH 16

Db 40 EFNITMOIRIKPH 54

RESULT 14

Q90XG6
 ID Q90XG6 PRELIMINARY; PRT; 146 AA.
 AC Q90XG6;
 DT 01-MAY-2000 (TREMblrel. 13, Created)
 DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR-A120.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Cranata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Ishii H., Atakawa T., Okayama M., Oota I., Takuma T., Inomata K.;
 RT "Developmental expression of vascular endothelial growth factor-A
 (VEGF-A) splicing variants, VEGF-A188, VEGF-A164, and VEGF-A120 in rat
 masseter muscle."
 RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF215726; AAF19212.1; -
 DR INTERPRO; IPR000072; -
 DR PFAM; PF00341; PDGF; 1.
 DR PROSITE; PS00249; PDGF; 1.
 SQ SEQUENCE 146 AA; 17161 MW; AF92979C38EF532A CRC64;

Query Match 77.9%; Score 67; DB 11; Length 146;
 Best Local Similarity 92.9%; Pred. No. 6.3e-05;
 Matches 13; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 3 ESNTMOIMRIKPH 16
 ||| |||||
 DB 98 ESNATMOIMRIKPH 111

RESULT 15
 ID 042571 PRELIMINARY; PRT; 148 AA.
 AC 042571;
 DT 01-JAN-1998 (TREMblrel. 05, Created)
 DT 01-JAN-1998 (TREMblrel. 05, Last sequence update)
 DT 01-JUN-2000 (TREMblrel. 14, Last annotation update)
 DE VASCULAR ENDOTHELIAL GROWTH FACTOR 122.
 GN VEGF.
 OS Xenopus laevis (African clawed frog).
 OC Eukaryota; Metazoa; Chordata; Cranata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidoidea; Pipidae;
 OC Xenopodidae; Xenopus.
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Cleaver O., Tonissen K.F., Saha M.S., Krieg P.A.;
 RL Submitted (JUN-1997) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AF008593; AAB63679.1; -
 DR HSSP; P15692; 1YPP.
 DR INTERPRO; IPR000072; -
 DR PFAM; PF00341; PDGF; 1.
 DR PROSITE; PS00249; PDGF; 1.
 DR PRODOM; PD001629; -; 1.
 SQ SEQUENCE 148 AA; 17234 MW; 4AD153CA2F8B1E95 CRC64;

Query Match 69.8%; Score 60; DB 13; Length 148;
 Best Local Similarity 91.7%; Pred. No. 0.0013;
 Matches 11; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 5 NITMOIMRIKPH 16
 |||||:||||
 DB 101 NITMOIMRIKPH 112

Search completed: November 9, 2000, 15:39:40
 Job time: 617 sec

CC residue sequence Pro-Asp-Gly-Arg which constitutes residues 36-39 of
 CC basic FGF; it is also antagonistic to acidic FGF. The antagonist
 CC modulates growth of epithelial (and related) cells and can be used
 CC diagnostically or therapeutically, eg to treat proliferative
 CC diseases of eyes and kidneys, some types of tumours and adrenal
 CC vascularisation. It is able to bind with heparin or with the FGF
 CC receptor.
 CC See also P71542, P71557, P71558 and P71561.
 CC
 XX
 SQ Sequence 45 AA:

Query Match 100.0%; Score 239; DB 8; Length 45;
 Best Local Similarity 100.0%; Pred. No. 4.2e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFRLHPDGRVDGVREKSDPHIKLOLAERGVSIGKV 45
 1 ycknggfllrhpdgrrvdgvreksdphiklqlaeeergvvsikgv 45

RESULT 2
 R43278
 ID R43278 standard; peptide: 45 AA.

AC R43278;

DT 05-MAY-1994 (first entry)

DE FGF antagonist bFGF(24-68)-NH2.

XX Bovine; basic fibroblast growth factor; antagonist; mitogen;
 XX melanoma; glomerulonephritis; retinopathy.

OS Synthetic.

XX Key Location/Qualifiers

FT Modified-site 45 /note="amidated"

PN US5252718-A.

PD 12-OCT-1993.

PE 22-APR-1986; 86US-0854843.

PR 22-APR-1986; 86US-0854843.

PR 14-NOV-1988; 88US-0270225.

PR 27-APR-1992; 92US-0873773.

PA (SALK) SALK INST BIOLOGICAL STUDIES.

PI Baird JA, Ling NC;

XX WPI; 1993-336156/42.

PT New fibroblast growth factor peptide(s) - are FGF antagonists
 PT used to inhibit cell growth in culture or in disease e.g.

PT retinopathy, glomerulonephritis, melanoma etc.

XX Example 1; Column 10; 12pp; English.

CC The peptide bFGF(24-68)-NH2 (100mcg/ml) reduces the amount of
 CC radioactive bFGF bound to the BHK cells by 54% and shows strong

CC affinity to bind heparin.

XX Sequence 45 AA;

Query Match 100.0%; Score 239; DB 14; Length 45;
 Best Local Similarity 100.0%; Pred. No. 4.2e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY * 1 YCKNGGFRLHPDGRVDGVREKSDPHIKLOLAERGVSIGKV 45
 1 ycknggfllrhpdgrrvdgvreksdphiklqlaeeergvvsikgv 45

RESULT 3
 ID P81933 standard; protein: 86 AA.
 P81933;

AC P81933;

DT 26-OCT-1990 (first entry)

DE Human basic fibroblast growth factor mutein C86 from phage M13-PC86.

XX Human basic fibroblast growth factor: human bFGF mutein C86;

XX growth promoting activity; growth stimulating activity; phage M13-PC86;

XX capillary endothelial cells; angiogenic activity.

OS Synthetic.

XX Key Location/Qualifiers
 FT Misc-difference 87..87
 FT /label="mutation Lys-to-stopodon
 FT /note="Creates Afl II recognition site"

PN EP28F822-A.

PD 14-SEP-1988.

PE 20-FEB-1988; 88EP-0102491.

PR 24-FEB-1987; 87JP-0042218.

PA (TAKE) TAKEEDA CHEMICAL IND KK.

PI Senoo M, Krokawa T, Igarashi K, Sasada R;

XX WPI; 1988-258580/37.

DR N-PDSB; N81990.

PT Mutein of basic fibroblast growth factor -
 PT having fibroblast growth promoting activity, growth stimulating
 PT activity of capillary endothelial cells and angiogenic activity.

PS Disclosure; 1pp; English.

XX Using plasmid pTR8796, E.coli NM294 was transformed, whereby the
 CC strain E.coli NM294/pTR8796 was obtained, which (IFO 14701, FERM BP-1661)

CC harbors the plasmid pTR8796 expressing the mutein represented here.

CC The amino acid sequence Lys 87 to Ser 147 has been deleted.

CC It can be used as a healing accelerator for e.g. burns, wounds

CC or postoperative tissues or as a therapeutic drug based on its

CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also

CC be used as a reagent for acceleration of cell cultivation. A mutein

CC where at least one constituent cysteine is replaced by serine is

CC preferred because the mutein is highly stable and intermolecular bridges

CC and linkages are reduced or eliminated.

XX See also N81971-97.

XX Sequence 86 AA;

Query Match 100.0%; Score 239; DB 9; Length 86;
 Best Local Similarity 100.0%; Pred. No. 9.1e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Thu Nov 9 15:49:20 2000

us-09-266-543-1.rag

Page 8

XX rhbFGF mutein C137.
DE
XX Basic fibroblast growth factor; mutein C137.
KM
XX EP326907-A.
XX
XX PD 09-AUG-1989.
XX
XX PF 24-JAN-1989; 89EP-0101162.
XX
XX PR 26-JAN-1988; 88JP-0016260.
XX PR 19-AUG-1988; 88JP-0206968.
XX PR 20-SEP-1988; 88JP-0235842.
XX
XX (TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.
XX Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX WPI; 1989-228965/32.
XX
XX Mutelins of basic fibroblast growth factor - lacking carboxy terminal
PT amino acids; having growth promoting and angiogenic activities.
PS Disclosure; claim 9, page 22; Fig. 3; 41pp; english.
XX
XX rhbFGF mutein C137 (encoded by N90407) lacks 9 C-terminal amino acids of
CC basic fibroblast growth factor. It has high fibroblast growth promoting,
CC vasoendothelial cell growth promoting, and angiogenic activities, and has
CC high stability and low toxicity. It is used to accelerate healing of, eg
CC burns, wounds and postoperative tissues, as a drug for thrombosis or
CC arteriosclerosis, or as a reagent to accelerate cell cultivation.
CC Cys 70 and Cys 88 may be replaced by Ser, and Ile 138 is replaced by Ser.
XX
SQ Sequence 138 AA:

Query Match 100.0%; Score 239; DB 10; Length 138;
Best local Similarity 100.0%; Pred. No. 1.6e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFFLRHPDGRVGVREKSDPHIKLQLQAERGVSIGKV 45
Db 25 ycknggfflrhpdgrvgyvrexksdpkiklqlgaeergvvsikgv 69

RESULT 15
P90565
ID P90565 standard; protein; 138 AA.
XX
AC P90565;
XX
DT 26-OCT-1989 (first entry)
XX
DE rhbFGF mutein CS23C137.
XX
KM Basic fibroblast growth factor; mutein CS23C137.
XX
FH Key Location/Qualifiers
FT Modified-site 70
FT Modified-site 88
FT Modified-site 138
XX
PN EP326907-A.
XX
PD 09-AUG-1989.
XX
PF 24-JAN-1989; 89EP-0101162.
XX
XX PR 26-JAN-1988; 88JP-0016260.
XX PR 19-AUG-1988; 88JP-0206968.
XX PR 20-SEP-1988; 88JP-0235842.
XX

PA (TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.
XX
XX PI Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX WPI; 1989-228965/32.
XX
XX DR
XX
XX PT Mutelins of basic fibroblast growth factor - lacking carboxy terminal
PT amino acids; having growth promoting and angiogenic activities.
PS Disclosure; Fig. 14; 41pp; english.
XX
XX rhbFGF mutein CS23C137 (encoded by N90409) lacks 9 C-terminal amino acids
CC of basic fibroblast growth factor. It has high fibroblast growth
CC promoting, vasoendothelial cell growth promoting, and angiogenic
CC activities, and has high stability and low toxicity. It is used to
CC accelerate healing of, eg burns, wounds and postoperative tissues, as a
CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate
CC cell cultivation. Cys 70, Cys 88 and Ile 138 have been replaced by Ser
CC (see P90563).
XX
SQ Sequence 138 AA:

Query Match 100.0%; Score 239; DB 10; Length 138;
Best local Similarity 100.0%; Pred. No. 1.6e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 YCKNGGFFLRHPDGRVGVREKSDPHIKLQLQAERGVSIGKV 45
Db 25 ycknggfflrhpdgrvgyvrexksdpkiklqlgaeergvvsikgv 69

Search completed: November 9, 2000, 15:30:36
Job time: 101 sec


```

RESULT      12
ID          YI7995 standard; protein; 132 AA.
YI7995
XX AC       YI7995:
XX DT       16-AUG-1999 (first entry)
XX DE       Human basic fibroblast growth factor (FGF).
KW KW        Fusion protein; leader peptide; fermentation; interleukin-1; IL-1;
KM KM        leaderless fusion protein; fibroblast growth factor; FGF.
XX OS       Homo sapiens.
XX PN       US5914254-A.
XX PD       22-JUN-1999.
XX PF       12-MAY-1997;    97US-0854811.
PR PR       12-MAY-1997;    97US-0854811.
PR PR       02-AUG-1993;    93US-0100744.
PR PR       02-AUG-1994;    94US-0284784.
PA PA       (CELLT-) CELLTRIX PHARM INC.
PI PI       Cohen PA, Mascarenhas D, Nguyen KB, Olsen DR, Olson PS;
PI PI       Zhang Y;
DR DR       WPI: 1999-370500/31.
PT PT       Recombinant production of fusion proteins
PS PS       Example 2: Fig 1, 80pp; English.
XX XX
XX CC       The invention relates to recombinant production of fusion proteins using
CC CC       fusion partners that lack leader sequences. The nucleic acids, vectors,
CC CC       host cells and methods disclosed may be used to recombinantly produce
CC CC       large quantities of fusion proteins, in which the fusion partner lacks a
CC CC       leader sequence, via fermentation culture according to standard
CC CC       recombinant DNA methodologies. The polypeptide of interest is cleaved
CC CC       away from the rest of the fusion protein by proteolytic digestion. A
CC CC       variety of polypeptides may be produced in this manner including enzymes,
CC CC       growth factors, single chain antibodies DNA-/RNA-binding proteins,
CC CC       membrane receptors, mutant IGFBP-3s and fragments of them. Additionally,
CC CC       the invention may be used in the screening of libraries of random
CC CC       polypeptides by assays for their biological function. When fused to an
CC CC       interleukin-1-like (IL-1-like) polypeptide, the random peptides
CC CC       accumulate in a protected cellular compartment in a soluble active form.
CC CC       Leaderless fusion proteins may be produced in a wide variety of host
CC CC       cells (e.g. Escherichia coli), in a soluble, active and easily
CC CC       recoverable form at temperature at or close to the physiological optima
CC CC       for host cell growth. A wide variety of polypeptides, including those
CC CC       that are otherwise unstable or insoluble may be expressed as fusions with
CC CC       the IL-1-like polypeptides or other leader delayed translocating
CC CC       peptides. Sequences YI7992-996 represent five members of the IL-1-like
CC CC       protein family.
XX XX
SQ Sequence   132 AA:

Query Match           100.0%; Score 239; DB 20; Length 132;
Best Local Similarity 100.0%; Pred. No. 1,5e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0.

QY      1 YKNGCFELRIHPDGRVDSVRKSDFHIKIQLOAERGVSYSIGV 45
         |#####|#####|#####|#####|#####|
DB      10 yknggfllrhpdgrrvgdvreksdphlqlgaeryvyslkgy 54

RESULT      13
P81932
```

```

ID P81932 standard; protein; 134 AA.
XX
AC AC
XX P81932:
DT 26-OCT-1990 (first entry)
XX
DE Human basic fibroblast growth factor mutetin N14 from phage M13-PN14.
XX
KW Human basic fibroblast growth factor; human bFGF mutetin N14;
KM growth promoting activity; growth stimulating activity; phage M13-PN14;
XX capillary endothelial cells; angiogenic activity.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 3..3 /label-mutation_Pro_to_Met
FT /note-"Creates EcoRI recognition site"
FT
XX EP281822-A.
XX PD 14-SEP-1988.
XX PF 20-FEB-1988; 88EP-0102491.
XX PR 24-FEB-1987; 87JP-0042218.
XX PA (TAKE ) TAKEDA CHEMICAL IND KK.
XX PI Senoo M, Krokawa T, Igarashi K, Sasada R;
XX WIPI; 1988-258580/37.
DR DR N-PDSB; N81989.
XX PT Mutetin of basic fibroblast growth factor -
PT having fibroblast growth promoting activity, growth stimulating
PR activity of capillary endothelial cells and angiogenic activity.
XX PS Disclosure; : lpp; English.
CC CC Using plasmid pTR795, E.coli MM294 was transformed, whereby the
CC strain E.coli MM294/pTR795 was obtained, which (IFO 14700, FERM BP-1660)
CC harbors the plasmid pTR795 expressing the mutetin represented here.
CC The amino acid sequence Pro2-Pro14 has been deleted.
CC CC The mutetin has high stability and is low in toxicity.
CC It can be used as a healing accelerator for e.g. burns, wounds
CC or postoperative tissues or as a therapeutic drug based on its
CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also
CC be used as a reagent for acceleration of cell cultivation. A mutetin
CC where at least one constituent cysteine is replaced by serine is
CC preferred because the mutetin is highly stable and intermolecular bridges
CC and linkages are reduced or eliminated.
CC See also N81971-97.
XX
SQ Sequence 134 AA;

```


Query Match 100.0%; Score 239; DB 10; Length 114;
Best Local Similarity 100.0%; Pred. No. 1.3e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFRLRHPDGRVDGVRKSDPHIKLQIAEERGVSISKV 45
|||||
DB 25 ycknggfllrhpdggrvdgvrksdphiklqiaaergvvsikyv 69

RESULT 7

P90560 standard; protein; 118 AA.

AC P90560;

DT 26-OCT-1989 (first entry)

DE rhbFGF mutein C118.

KW Basic fibroblast growth factor; mutein C118.

PN EP326907-A.

PD 09-AUG-1989.

PF 24-JAN-1989; 89EP-0101162.

PR 26-JAN-1988; 88JP-0016260.

PR 19-AUG-1988; 88JP-0206968.

PR 20-SEP-1988; 88JP-0235842.

PA (TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.

PI Senoo M, Sasada R, Kurokawa T, Igarashi K;

DR WPI; 1989-228965/32.

PT Mutens of basic fibroblast growth factor - lacking carboxy terminal

PS amino acids, having growth promoting and angiogenic activities.

PS Disclosure; Fig. 6; 41pp; english.

CC rhbFGF mutein C118 (encoded by N90404) lacks 29 C-terminal amino acids of

CC basic fibroblast growth factor. It has high fibroblast growth promoting,

CC vasendothelial cell growth promoting, and angiogenic activities, and has

CC high stability and low toxicity. It is used to accelerate healing of, eg

CC burns, wounds and postoperative tissues, as a drug for thrombosis or

CC arteriosclerosis, or as a reagent to accelerate cell cultivation.

SO Sequence 118 AA;

Query Match 100.0%; Score 239; DB 10; Length 118;
Best Local Similarity 100.0%; Pred. No. 1.3e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFRLRHPDGRVDGVRKSDPHIKLQIAEERGVSISKV 45
|||||
DB 25 ycknggfllrhpdggrvdgvrksdphiklqiaaergvvsikyv 69

RESULT 8

P90561 standard; peptide; 123 AA.

AC P90561;

DT 26-OCT-1989 (first entry)

DE rhbFGF mutein C123.

KW Basic fibroblast growth factor; mutein C123.

XX EP326907-A.
XX 09-AUG-1989.

PF 24-JAN-1989; 89EP-0101162.

PR 26-JAN-1988; 88JP-0016260.

PR 19-AUG-1988; 88JP-0206968.

PR 20-SEP-1988; 88JP-0235842.

PA (TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.

PI Senoo M, Sasada R, Kurokawa T, Igarashi K;

DR WPI; 1989-228965/32.

PT Mutens of basic fibroblast growth factor - lacking carboxy terminal

PS amino acids, having growth promoting and angiogenic activities.

PS Disclosure; Fig. 7; 41pp; english.

CC rhbFGF mutein C123 (encoded by N90405) lacks 24 C-terminal amino acids of

CC basic fibroblast growth factor. It has high fibroblast growth promoting,

CC vasendothelial cell growth promoting, and angiogenic activities, and has

CC high stability and low toxicity. It is used to accelerate healing of, eg

CC burns, wounds and postoperative tissues, as a drug for thrombosis or

CC arteriosclerosis, or as a reagent to accelerate cell cultivation.

SO Sequence 123 AA;

Query Match 100.0%; Score 239; DB 10; Length 123;
Best Local Similarity 100.0%; Pred. No. 1.4e-25;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFRLRHPDGRVDGVRKSDPHIKLQIAEERGVSISKV 45
|||||
DB 25 ycknggfllrhpdggrvdgvrksdphiklqiaaergvvsikyv 69

RESULT 9

P81940 standard; protein; 129 AA.

AC P81940;

DT 26-OCT-1990 (first entry)

DE Human basic fibroblast growth factor mutein C129 from plasmid pTB856.

KW Human basic fibroblast growth factor; human bFGF mutein FINT;

KW growth promoting activity; growth stimulating activity; plasmid pTB856;

KW capillary endothelial cells; angiogenic activity.

OS Synthetic.

FT Key location/Qualifiers

FT Misc-difference 129..129 /label-mutation_to_stopcodon

PN EP281822-A.

PD 14-SEP-1988.

PF 20-FEB-1988; 88EP-0102491.

PR 24-FEB-1987; 87JP-0042218.

PA (TAKE) TAKEDA CHEMICAL IND KK.

PI Senoo M, Kurokawa T, Igarashi K, Sasada R;

RESULT	4
P90557	
ID	P90557 standard; protein; 101 AA.
XX	
AC	P90557;
XX	
DT	26-OCT-1989 (first entry)
XX	
DE	rhdFGF mutein CS102.
XX	
KW	Basic fibroblast growth factor; mutein CS102.
XX	
PN	EP326907-A.
XX	
PD	09-AUG-1989.
XX	
PF	24-JAN-1989; 89EP-0101162.
XX	
PR	26-JAN-1988; 88JP-0016260.
XX	
PR	19-AUG-1988; 88JP-0206968.
XX	
PR	20-SEP-1988; 88JP-0235842.
XX	
PA	(TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.
XX	
PI	Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX	
DR	WPJ; 1989-228965/32.
XX	
PT	Mutlens of basic fibroblast growth factor - lacking carboxy terminal
XX	
PT	amino acids, having growth promoting and angiogenic activities.
XX	
PS	Disclosure; Fig. 3; 41pp; english.
XX	
CC	rhdFGF mutein CS102 (encoded by N90401) lacks 46 C-terminal AAs of
XX	
CC	basic fibroblast growth factor. It has high fibroblast growth promoting,
XX	
CC	vasoendothelial cell growth promoting, and angiogenic activities, and has
XX	
CC	high stability and low toxicity. It is used to accelerate healing of, eg
XX	
CC	burns, wounds and postoperative tissues, as a drug for thrombosis or
XX	
CC	arteriosclerosis, or as a reagent to accelerate cell cultivation.
XX	
SQ	Sequence 101 AA;
Query Match	100.0%; Score 239; DB 10; Length 101;
Best Local Similarity	100.0%; Pred. No. 1.1e-25;
Matches 45; Conservative	0; Mismatches 0; Indels 0; Gaps 0
Oy	1 YCKNGGFPLRIHPDGRVNDGVREKSDPHIKLQLQAERGVSINKV 45 Db 25 yekngsfllrhpdpgrvndgvreksdphiklqlqaergvsinkv 69
RESULT	5
P90558	
ID	P90558 standard; protein; 105 AA.
XX	
AC	P90558;
XX	
DT	26-OCT-1989 (first entry)
XX	
DE	rhdFGF mutein CS105.
XX	
KW	Basic fibroblast growth factor; mutein CS105.
XX	
PN	EP326907-A.
XX	
PD	09-AUG-1989.
XX	
PF	24-JAN-1989; 89EP-0101162.
XX	
PR	26-JAN-1988; 88JP-0016260.
XX	
PR	19-AUG-1988; 88JP-0206968.
XX	
PR	20-SEP-1988; 88JP-0235842.

XX (TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.
XX
XX Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX WPI: 1989-228965/32.
XX
XX Mutens of basic fibroblast growth factor - lacking carboxy terminal
XX amino acids, having growth promoting and angiogenic activities.
XX
XX Disclosure; Fig. 4; 41pp; english.
XX
XX rhbFGF muten CS105 (encoded by N90402) lacks 42 C-terminal AAs of
XX basic fibroblast growth factor. It has high fibroblast growth promoting,
XX vasoendothelial cell growth promoting, and angiogenic activities, and has
XX high stability and low toxicity. It is used to accelerate healing of, eg
XX burns, wounds and postoperative tissues, as a drug for thrombosis or
XX arteriosclerosis, or as a reagent to accelerate cell cultivation.
XX
XX Sequence 105 AA;
XX

```

Query Match Similarity      100.0%: Score 239; DB 10; Length 105;
Best Local Similarity      100.0%: Pred. No. 1,2e-25;
Matches      45; Conservative      0; Mismatches      0; Indels      0; Gaps      0
OY          1 YCKNGGFLLRIHPDGRVDGVRKSDPHIKLOLQAEERGVSILKGV 45
            |||||
DB          25 yknnggfflrihpddgrvdyvrksdpshiklqlqaeergvsilkyv 69
            |||||

RESULT      6
P90559 ID P90559 standard; peptide; 114 AA.
XX
AC P90559;
XX
DT 26-OCT-1989 (first entry)
XX
DE rhbFGF mutetin C114.
KW Basic fibroblast growth factor; mutetin C114.
XX
PN EP326907-A.
XX
PD 09-AUG-1989.
XX
PE 24-JAN-1989; 39EP-0101162.
XX
PR 26-JAN-1988; 38JP-0016260.
PR 19-AUG-1988; 38JP-0206968.
PR 20-SEP-1988; 38JP-0235842.
XX
PA (TAKE ) TAKEDA CHEMICAL INDUSTRIES LTD.
XX
PI Senoo M., Sasada R., Kurokawa T., Igarashi K.;
XX WPT; 1989-228965/32.
XX
PT Mutetins of basic fibroblast growth factor - lacking carboxy terminal
XX amino acids, having growth promoting and angiogenic activities.
XX
PS Disclosure: Fig. 5; 41pp; english.
XX
XX rhbGF mutetin C114 (encoded by N90403) lacks 33 C-terminal amino acids of
CC basic fibroblast growth factor. It has high fibroblast growth promoting,
CC vasoendothelial cell growth promoting, and angiogenic activities, and has
CC high stability and low toxicity. It is used to accelerate healing of, eg
CC burns, wounds and postoperative tissues, as a drug for thrombosis or
CC arteriosclerosis, or as a reagent to accelerate cell cultivation.
XX
SQ Sequence 114 AA.
```


CC residue sequence Pro-Asp-Gly-Arg which constitutes residues 36-39 of
 CC basic FGF; it is also antagonistic to acidic FGF. The antagonist
 CC modulates growth of epithelial (and related) cells and can be used
 CC diagnostically or therapeutically, eg to treat proliferative
 CC diseases of eyes and kidneys, some types of tumours and adrenal
 CC vascularisation. It is able to bind with heparin or with the FGF
 CC receptor.
 CC See also P71542, P71557, P71558 and P71561.
 CC
 XX
 XX
 SQ Sequence 45 AA;

Query Match 100.0%; Score 239; DB 8; Length 45;
 Best Local Similarity 100.0%; Pred. No. 4.2e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFRLHPDGRVDGVRKSDPHIKLOLAERGVSIGKV 45
 ||||||||||||||||||||||||||||||||||||||||
 Db 1 ycknggfllrhpdgtrvdgvrksdphiklqgaergvslkqv 45

RESULT 2
 R43278
 ID R43278 standard; peptide; 45 AA.
 AC R43278;
 XX
 XX

DT 05-MAY-1994 (first entry)

DE FGF antagonist bFGF(24-68)-NH2.

XX Bovine; basic fibroblast growth factor; antagonist; mitogen;
 KW melanoma; glomerulonephritis; retinopathy.
 XX
 XX Synthetic.

XX Key Location/Qualifiers
 FH Modified-site 45
 FT /note="amlated"

PN US5252718-A.

PD 12-OCT-1993.

PF 22-APR-1986; 86US-0854843.

PR 22-APR-1986; 86US-0854843.

PR 14-NOV-1988; 88US-0270225.

PR 27-APR-1992; 92US-0873773.

XX (SALK) SALK INST BIOLOGICAL STUDIES.

PI Baird JA, Ling NC;

DR WPI; 1993-336156/42.

XX New fibroblast growth factor peptide(s) - are FGF antagonists
 PT used to inhibit cell growth in culture or in disease e.g.
 PT retinopathy, glomerulonephritis, melanoma etc.

XX Example 1; Column 10; 12pp; English.

CC The peptide bFGF(24-68)-NH2 (100mcg/ml) reduces the amount of
 CC radioactive bFGF bound to the BHK cells by 54% and shows strong
 CC affinity to bind heparin.

CC
 CC
 XX Sequence 45 AA;

Query Match 100.0%; Score 239; DB 14; Length 45;
 Best Local Similarity 100.0%; Pred. No. 4.2e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFRLHPDGRVDGVRKSDPHIKLOLAERGVSIGKV 45
 ||||||||||||||||||||||||||||||||||||||||
 Db 1 ycknggfllrhpdgtrvdgvrksdphiklqgaergvslkqv 45

RESULT 3
 P81933

ID P81933 standard; protein; 86 AA.

AC P81933;

DT 26-OCT-1990 (first entry)

XX Human basic fibroblast growth factor mutein C86 from phage M13-PC86.

DE Human basic fibroblast growth factor; human bFGF mutein C86;

XX growth promoting activity; growth stimulating activity; phage M13-PC86;

XX capillary endothelial cells; angiogenic activity.

XX Synthetic.

XX Key Location/Qualifiers
 FH Misc-difference 87..87
 FT /label="mutation_Lys-to-stopodon
 FT /note="creates Afl II recognition site"

PN EP28F822-A.

PD 14-SEP-1988.

PF 20-FEB-1988; 88EP-0102491.

PR 24-FEB-1987; 87JP-0042218.

XX (TAKE) TAKEDA CHEMICAL IND KK.

XX Senoo M, Krokawa T, Igarashi K, Sasada R;

XX WPI; 1988-258580/37.

XX DR N-PDSB; N81990.

XX Mutein of basic fibroblast growth factor -
 PT having fibroblast growth promoting activity, growth stimulating
 PT activity of capillary endothelial cells and angiogenic activity.

XX Disclosure; 1pp; English.

XX Using plasmid pPB796, E.coli MM294 was transformed, whereby the
 CC strain E.coli MM294/pPB796 was obtained, which (IFO 14701, FERM BP-1661)

CC harbors the plasmid pPB796 expressing the mutein represented here.

CC The amino acid sequence Lys 87 to Ser 147 has been deleted.

CC It can be used as a healing accelerator for e.g. burns, wounds
 CC or postoperative tissues or as a therapeutic drug based on its

CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also
 CC be used as a reagent for acceleration of cell cultivation. A mutein

CC where at least one constituent cysteine is replaced by serine is
 CC preferred because the mutein is highly stable and intermolecular bridges

CC and linkages are reduced or eliminated.

XX See also N81971-97.

XX Sequence 86 AA;

Query Match 100.0%; Score 239; DB 9; Length 86;
 Best Local Similarity 100.0%; Pred. No. 9.1e-26;
 Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFRLHPDGRVDGVRKSDPHIKLOLAERGVSIGKV 45
 ||||||||||||||||||||||||||||||||||||||||
 Db 25 ycknggfllrhpdgtrvdgvrksdphiklqgaergvslkqv 69

CC residue sequence Pro-Asp-Gly-Arg which constitutes residues 36-39 of
CC basic FGF. It is also antagonistic to acidic FGF. The antagonist
CC modulates growth of epithelial (and related) cells and can be used
CC diagnostically or therapeutically, eg to treat proliferative
CC diseases of eyes and kidneys, some types of tumours and adrenal
CC vascularisation. It is able to bind with heparin or with the FGF
CC receptor.
CC See also P71542, P71557, P71558 and P71561.
XX
SQ Sequence 45 AA;

Query Match 100.0%; Score 239; DB 8; Length 45;
Best Local Similarity 100.0%; Pred. No. 4.2e-26;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVSISKV 45
Db 1 ycknggfflrhpdgrrvdgvrksdpnhkqlqaeergvsiskv 45

RESULT 2
R43278
ID R43278 standard; peptide; 45 AA.
XX
AC R43278;
XX
DT 05-MAY-1994 (first entry)
XX
DE FGF antagonist bFGF(24-68)-NH2.
XX
KM Bovine; basic fibroblast growth factor; antagonist; mitogen;
XX melanoma; glomerulonephritis; retinopathy.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 45
FT /note="amidated"
XX
FN US5252718-A.
XX
PD 12-OCT-1993.
XX
PE 22-APR-1986; 86US-0854843.
XX
PR 22-APR-1986; 86US-0854843.
PR 14-NOV-1988; 88US-0270225.
PR 27-APR-1992; 92US-0873773.
XX
PA (SALK) SALK INST BIOLOGICAL STUDIES.
XX
PI Baird JA, Ling NC;
XX
DR WPI: 1993-336156/42.
XX
XX New fibroblast growth factor peptide(s) - are FGF antagonists
PT used to inhibit cell growth in culture or in disease e.g.
PT retinopathy, glomerulonephritis, melanoma etc.
XX
PS Example 1; Column 10; 12pp; English.
XX
XX The peptide bFGF(24-68)-NH2 (100mcg/ml) reduces the amount of
CC radioactive bFGF bound to the BHK cells by 54% and shows strong
CC affinity to bind heparin.
XX
SQ Sequence 45 AA;

Query Match 100.0%; Score 239; DB 14; Length 45;
Best Local Similarity 100.0%; Pred. No. 4.2e-26;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVSISKV 45
Db 1 ycknggfflrhpdgrrvdgvrksdpnhkqlqaeergvsiskv 45

RESULT 3
P81933
ID P81933 standard; protein; 86 AA.
XX
AC P81933;
XX
DT 26-OCT-1990 (first entry)
XX
DE Human basic fibroblast growth factor mutin C86 from phage M13-PC86.
XX
KM Human basic fibroblast growth factor; human bFGF mutin C86;
XX growth promoting activity; growth stimulating activity; phage M13-PC86;
XX capillary endothelial cells; angiogenic activity.
XX
OS Synthetic.

XX
FH Key Location/Qualifiers
FT MISC-difference 87..87
FT /label=mutation,lys-to-stopcodon
FT /note="creates Afl II recognition site"
XX
PN EP261822-A.
XX
PD 14-SEP-1988.
XX
PE 20-FEB-1988; 88EP-0102491.
XX
PR 24-FEB-1987; 87DP-0042218.
XX
PA (TAKE) TAKEDA CHEMICAL IND KK.
XX
PI Senoo M, Krokawa T, Igarashi K, Sasada R;
XX WPI: 1988-258580/37.
XX
DR N-PDSB; N81990.
XX
XX Mutin of basic fibroblast growth factor -
PT having fibroblast growth promoting activity, growth stimulating
PT activity of capillary endothelial cells and angiogenic activity.
XX
PS Disclosure; 1pp; English.

XX
XX Using plasmid pTB796, E.coli MM294 was transformed, whereby the
CC strain E.coli MM294/pTB796 was obtained, which (IFO 14701, FERM BP-1661)
CC harbors the plasmid pTB796 expressing the mutin represented here.
CC The amino acid sequence lys 87 to Ser 147 has been deleted.
CC The mutin has high stability and is low in toxicity.
CC It can be used as a healing accelerator for e.g. burns, wounds
CC or postoperative tissues or as a therapeutic drug based on its
CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also
CC be used as a reagent for acceleration of cell cultivation. A mutin
CC where at least one constituent cysteine is replaced by serine is
CC preferred because the mutin is highly stable and intermolecular bridges
CC and linkages are reduced or eliminated.
CC See also N81971-97.
XX
SQ Sequence 86 AA;

Query Match 100.0%; Score 239; DB 9; Length 86;
Best Local Similarity 100.0%; Pred. No. 9.1e-26;
Matches 45; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 YCKNGGFFLRHPDGRVDGVRKSDPHIKIQLQAEERGVSISKV 45
Db 25 ycknggfflrhpdgrrvdgvrksdpnhkqlqaeergvsiskv 69

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: November 9, 2000, 15:28:55 ; Search time 94.87 Seconds
(without alignments)
16.219 Million cell updates/sec

Title: US-09-266-543-1
Perfect score: 239
Sequence: 1 YCKNGGFRLRHPDGRVDV.....PHIKLOQAEKRGVSISKV 45

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 268485 seqs, 34193795 residues
Total number of hits satisfying chosen parameters: 268485

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database :

A.Geneseq_36:*

- 1: /SIDS1/gcgcdata/geneseq/geneseqp/AA1980.DAT:*
- 2: /SIDS1/gcgcdata/geneseq/geneseqp/AA1981.DAT:*
- 3: /SIDS1/gcgcdata/geneseq/geneseqp/AA1982.DAT:*
- 4: /SIDS1/gcgcdata/geneseq/geneseqp/AA1983.DAT:*
- 5: /SIDS1/gcgcdata/geneseq/geneseqp/AA1984.DAT:*
- 6: /SIDS1/gcgcdata/geneseq/geneseqp/AA1985.DAT:*
- 7: /SIDS1/gcgcdata/geneseq/geneseqp/AA1986.DAT:*
- 8: /SIDS1/gcgcdata/geneseq/geneseqp/AA1987.DAT:*
- 9: /SIDS1/gcgcdata/geneseq/geneseqp/AA1988.DAT:*
- 10: /SIDS1/gcgcdata/geneseq/geneseqp/AA1989.DAT:*
- 11: /SIDS1/gcgcdata/geneseq/geneseqp/AA1990.DAT:*
- 12: /SIDS1/gcgcdata/geneseq/geneseqp/AA1991.DAT:*
- 13: /SIDS1/gcgcdata/geneseq/geneseqp/AA1992.DAT:*
- 14: /SIDS1/gcgcdata/geneseq/geneseqp/AA1993.DAT:*
- 15: /SIDS1/gcgcdata/geneseq/geneseqp/AA1994.DAT:*
- 16: /SIDS1/gcgcdata/geneseq/geneseqp/AA1995.DAT:*
- 17: /SIDS1/gcgcdata/geneseq/geneseqp/AA1996.DAT:*
- 18: /SIDS1/gcgcdata/geneseq/geneseqp/AA1997.DAT:*
- 19: /SIDS1/gcgcdata/geneseq/geneseqp/AA1998.DAT:*
- 20: /SIDS1/gcgcdata/geneseq/geneseqp/AA1999.DAT:*
- 21: /SIDS1/gcgcdata/geneseq/geneseqp/AA2000.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the chance being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	239	100.0	45	8 P71559	Fibroblast Growth
2	239	100.0	45	14 R43278	FGF antagonist bFG
3	239	100.0	86	9 P81933	Human basic fibrob
4	239	100.0	101	10 P90357	rhbFGF mutetin CS10
5	239	100.0	105	10 P90558	rhbFGF mutetin CS10
6	239	100.0	114	10 P90559	rhbFGF mutetin CS14
7	239	100.0	118	10 P90560	rhbFGF mutetin CS18
8	239	100.0	123	10 P90561	rhbFGF mutetin CS123
9	239	100.0	129	9 P81940	Human basic fibrob
10	239	100.0	129	10 P90562	rhbFGF mutetin CS129
11	239	100.0	129	10 P90564	rhbFGF mutetin CS23
12	239	100.0	132	20 Y17995	Human basic fibrob

13	239	100.0	134	9 P81932	Human basic fibrob
14	239	100.0	138	10 P90563	rhbFGF mutetin CS17
15	239	100.0	138	10 P90565	rhbFGF mutetin CS23
16	239	100.0	139	9 P81937	Human basic fibrob
17	239	100.0	144	11 R03964	Basic fibroblast g
18	239	100.0	145	13 R24408	Sequence of basic
19	239	100.0	145	13 R25913	Human basic fibrob
20	239	100.0	146	8 P71145	Basic fibroblast g
21	239	100.0	146	9 P82579	Human basic fibrob
22	239	100.0	146	12 R11427	Basic fibroblast g
23	239	100.0	146	13 R25197	Basic fibroblast g
24	239	100.0	146	13 R25423	bFGF derivative.
25	239	100.0	146	13 R25943	Bovine basic FGF
26	239	100.0	146	13 R27964	bFGF mutetin bFGF
27	239	100.0	146	13 R27965	bFGF mutetin bFGF
28	239	100.0	146	13 R27966	bFGF mutetin bFGF
29	239	100.0	146	13 R27967	bFGF mutetin bFGF
30	239	100.0	146	13 R27717	Mammalian basic FG
31	239	100.0	146	14 R34494	Human basic fibrob
32	239	100.0	146	14 R39190	Human basic fibrob
33	239	100.0	146	14 R39188	Human basic fibrob
34	239	100.0	146	14 R42835	bFGF mutetin CS23
35	239	100.0	146	15 R65925	Fibroblast growth
36	239	100.0	146	15 R65926	Fibroblast growth
37	239	100.0	146	15 R65927	Fibroblast growth
38	239	100.0	146	15 R65928	Fibroblast growth
39	239	100.0	146	15 R65929	Fibroblast growth
40	239	100.0	146	20 W87617	Human basic fibrob
41	239	100.0	146	21 Y81941	Recombinant bovine
42	239	100.0	147	9 P81917	Human basic fibrob
43	239	100.0	147	9 P81918	Human basic fibrob
44	239	100.0	147	9 P81919	Human basic fibrob
45	239	100.0	147	9 P81920	Human basic fibrob

ALIGNMENTS

RESULT 1	
P71559	P71559 standard; Protein; 45 AA.
XX	
AC	P71559;
XX	
DT	01-MAR-1991 (first entry)
XX	
DE	Fibroblast Growth Factor antagonist #4.
XX	
KW	fibroblast growth factor; FGF; heparin-binding.
XX	
OS	Synthetic.
XX	
PN	EP246753-A.
XX	
PD	25-NOV-1987.
XX	
PF	21-APR-1987; 37EP-0303489.
XX	
PR	22-APR-1986; 36US-0854843.
XX	
PA	(SALK) SALK INST FOR BIOL STUD.
XX	
PI	Baird AJ; Ling NCK;
XX	
DR	WPI; 1987-328974/47.
XX	
PT	New polypeptide antagonists of fibroblast growth factor -
PT	effective against basic or acidic forms, useful eg for treating
PT	proliferative diseases
XX	
PS	Claim 7; Page 16; 18pp; English.
XX	
CC	The C-terminal group is -NH2 or -OH. The sequence includes the four



Creation date: 01-22-2004
Indexing Officer: FPLUMMER - FRANCIS PLUMMER
Team: OIPEBackFileIndexing
Dossier: 09266543

Legal Date: 09-13-2001

No.	Doccode	Number of pages
1	SRNT	54

Total number of pages: 54

Remarks:

Order of re-scan issued on

